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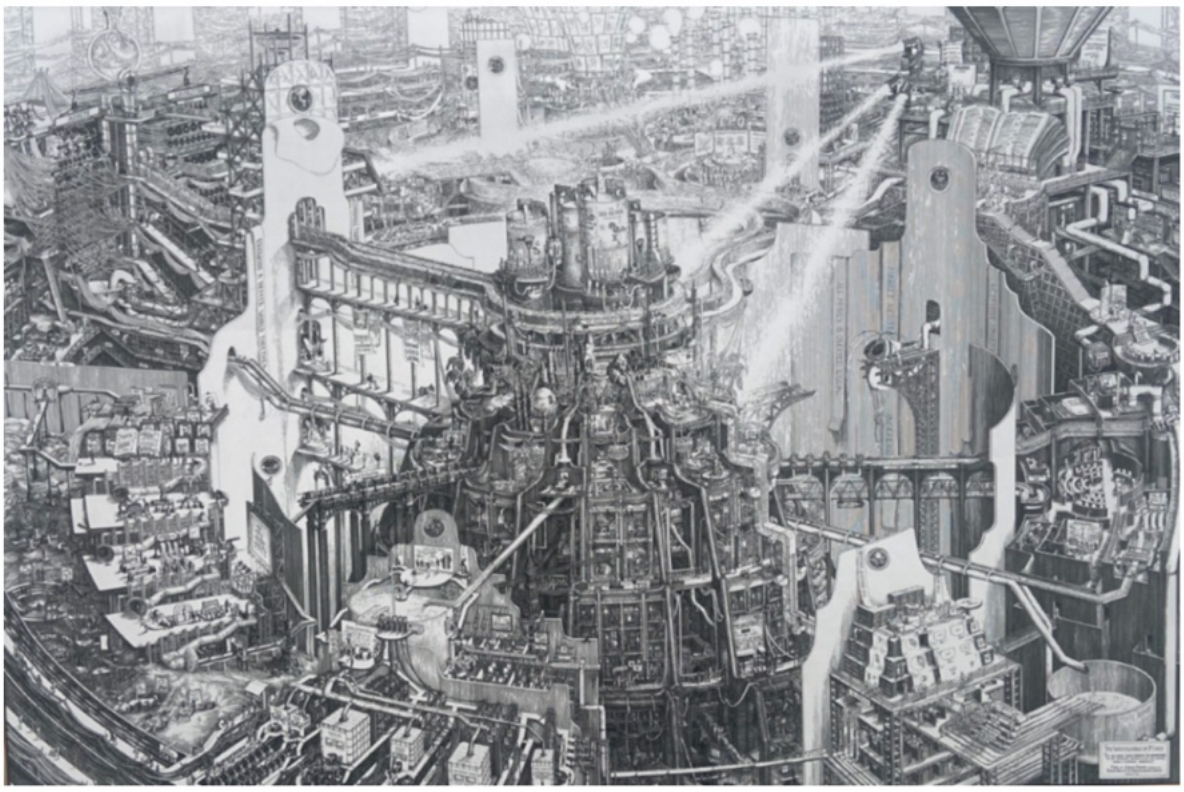

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ENTANGLED SPATIALITIES: TOWARDS A NIETZSCHEAN ARCHITECTURE OF HYPERMODERNITY

NIKOLAOS-ION TERZOGLOU

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ABSTRACT

In my own recent research on the concept and experience of place in Friedrich Nietzsche's thinking, I have come to the conclusion that locality for him is not the indifferent background or neutral setting of creation (Terzoglou 2022: 49–63). It is an active factor in the creative process. Ego (body) and place are not two external entities that are approached geometrically or metrically. They do not add up spatially, as modes of extension. On the contrary, there seems to be intense, agonistic, labyrinthine interdependence, intertwinement, and intersection between the self and the other, body and environment. Peter Sloterdijk, in his book *Nietzsche Apostle*, claims that subjectivity in Nietzsche becomes a "resonance-body" that drifts towards an "inexorable exteriority", abolishing the borders between the ego and the world (Sloterdijk 2013: 40, 55, 81).

My core questions are: how should we evaluate the various spatial and architectural metaphors Nietzsche develops in his textual corpus? Is he talking about real or fictional spaces, geographical locations of the body, or imaginary landscapes of the mind? I will argue that in order to understand the nature and physiognomy of Nietzsche's spatial imagery, architectural imaginaries and metaphorologies, we have to adopt and delineate a new, original, wholistic concept: that of "entangled spatialities". In this paper, I will define the meaning I attach to this term, and attempt to show its relevance in the context of hypermodernity, claiming that it can be used as a design tool to boost creativity and produce possible versions of intricate "Nietzschean architectures" on the boundary between reality and fiction.

KEYWORDS: entangled spatialities, Nietzschean architectures, place, body, metaphorology, labyrinth, fictional spaces.

THE ENIGMA OF THE LABYRINTH

Friedrich Nietzsche famously writes in *Daybreak*: "If we desired and dared an architecture corresponding to the nature of our soul (we are too cowardly for it!) – our model would have to be the labyrinth!" (Nietzsche 1997b: 104). As Anthony Vidler has shown, Nietzsche's dominant metaphor of the labyrinth connotes a subterranean, interior, invisible space, with no façades and no outside, and with maze-like passages: *a* "prototype of a nonvisual monument, to be experienced haptically rather than optically" (Vidler 1999: 61). What kind of architecture is Nietzsche suggesting to us? The image of the labyrinth is an enigma. Dorita Hannah, in her search for a "Nietzschean architecture", opts for a dynamic, participatory, "performative spatiality", where event, act, and becoming transcend object, work, and being, creating a dancing site of sensorial immersion for the audience (Hannah 2018: 19–34).

I claim that Nietzsche understood "architecture" as a mood of the body which has acquired a material expression in the place and the nature of the boundary between the ego and the world. We can discern two families of Nietzschean architectures. (1) The tendency of the body to distance itself from the environment for defence, protection, isolation and absolute control of the outside corresponds to the architectural metaphors of the tower,[1] the pyramid, the fortress, the palazzo, or the obelisk: a closed structure which is self-sufficient, defensive, and concentrated, with minimal permeability in relation to the external. It protects the body from the threats of this outside. (2) The architectural and spatial metaphors of the labyrinth,[2] the cave,[3] the conduit or the stoa[4] correspond to the opposite tendency of the body merging with the place, creating proximity, diffusion and wandering, and the loss of the ego. The first three metaphors of the second type symbolize the loss of control, the fatalistic submission of the ego to a continuous, holistic, materialistic, deterministic rhythm, the depletion of orientation and the inability to escape or exit: a *confinement structure*, where the ego loses control and completely yields to the complex organization of this place. In the labyrinth, cave, or burrow, it is dark and you are "blind": you coercively follow the unfolding of the corridors or tunnels. Place and the body are deterministically completely indissoluble, identified, and melted together. The fourth architectural metaphor, the stoa, describes a partially controlled, protected opening and freer route and passage in public space: the filter between the private and the public.

These architectural forms, which constitute *spatial archetypes*, should not be seen as Nietzsche's realistic or literal proposals for real environments: this would be a positivist fallacy, a simplistic epistemological realism and reductionism, to which most of the scholars of the collective volume *Nietzsche and an Architecture of our Minds* have fallen. At the end of this book, various random quotes on architecture from Nietzsche's corpus are presented without context and do not make any sense at all (Kostka 1999: 333–346). I claim that the archetypes we have mentioned *metaphorically* codify the affective moods and the opposing tendencies of the dual, polemical, body/place relationship in architectural image-thoughts or, better, in archetypes. Architectural spatial archetypes act here as metonyms or metaphors of a corporeal and

[1] http://www.nietzschesource.org/#eKGWB/JGB-26 [accessed: 22.3.2023].
[2] http://www.nietzschesource.org/#eKGWB/JGB-29; http://www.nietzschesource.org/#eKGWB/M-169 [accessed: 22.3.2023].
[3] http://www.nietzschesource.org/#eKGWB/JGB-289; http://www.nietzschesource.org/#eKGWB/SE-3 [accessed: 22.3.2023].
[4] http://www.nietzschesource.org/#eKGWB/GM-III-8; http://www.nietzschesource.org/#eKGWB/FW-280 [accessed: 22.3.2023].

gestural involvement with the place or environment (*milieu*).[5] I argue that they are *allegorical crystallizations of the issue of space control*. Only in this way, I believe, are we presented with a *genetic-structural explanation* of the *two families of spatial archetypes* in Nietzsche's thinking. I contend that Nietzsche seemingly articulates imaginary landscapes of the mind.

Otherwise, there is an immediate risk of plunging research into anecdotes of excerpts. For example, this is what Sarah Kofman suffers from in her important study titled *Nietzsche and Metaphor*. She claims that space in Nietzsche is a "fundamental metaphorical schema", a "form", not a reality (Kofman 1993: 28, 40). According to her working hypothesis, Nietzsche's imaginary architectural metaphors are used to describe "hierarchised systems of concepts" "as symptoms of the health or sickness of their constructors: every construction is actually the expression of an internal architecture [...] of a certain hierarchisation of the drives" (Kofman 1993: 60–61). Unfortunately, however, the analysis and mapping of the beehive, the tower, the bastion, the stronghold, the pyramid, the tomb, and the spider's web that follows, are timid, descriptive, and inadequate: Kofman does not take full advantage of the dynamics of her original working hypothesis (Kofman 1993: 59–80). In order to unravel the specific texture of Nietzsche's spatial architectures, we need to move beyond the imaginary surface of his metaphors and examine the deep entanglement between the self and place that permeates his metaphorological thinking, unearthing an *existential, literal, real subterranean layer*.

PLACE AND BODY: AGONISTICS

In his early work *On Moods* (*Über Stimmungen*, first published in 1864), Nietzsche formulated a war (or war-like) model (*Streit, Kampf*)[6] of the interrelationship between the individual human psyche and the material/atmospheric environment (Nietzsche 1997a: 113–116). According to my own reading of this remarkable literary text, "mood" is a battle between memory (thought) and desire (lust for life), in which inner affective feelings and external experiences merge. The "soul" here is already of the same substantial order (*Stoff*) as the event (*Ereignis*), leading to the collapse of the Cartesian dualism between mind and thing (extension). The body and the mind converge on things from the outside place, to the point that the interrelationship between internal and external reactions disintegrates. This is perhaps what Graham Parks called "radical hylozoism", or "panpsychism", namely the idea of a continuum between human and organic spheres, in relation to Nietzsche (Parkes 1994: 47–48). We are presented with a radical, materialistic epistemological model defined not by logic or knowledge, nor by faith, but by intuition, temperament, affect and will.

These themes are picked up again in *Ecce Homo*, Nietzsche's autobiography, where the meteorological, atmospheric, topological, and geographical metaphor of thought strikes the mind of the reader. Stephan Günzel calls this predominance of geographical, landscape and mountaineering metaphors in Nietzsche a "geophilosophy", borrowing the term from Gilles Deleuze and Felix Guattari. He rightly observes that Nietzsche's depiction of these theatrical, theoretical, allegorical landscapes focuses less on their visual

[5] http://www.nietzschesource.org/#eKGWB/JGB-242 [accessed: 22.3.2023].
[6] As to the meaning of "struggle" or "contest" in early Nietzsche, see the text *Homer's Wettkampf* at: Nietzsche Source — Digitale Kritische Gesamtausgabe Werke und Briefe (eKGWB), CV-CV5 [accessed: 15.3.2023].

attributes and more on tactile and somatic descriptions that form a "geographical tissue": climate, temperature, and humidity (Günzel 2003: 78–91). This paradoxical metaphorology becomes literal in the second part of the text, entitled "Why I Am So Clever". Nietzsche moves on to a specific thematization of the issue and question of place as it relates to climate and creativity. It is worth quoting an extensive passage (Nietzsche 2005: 87–88):

Most closely related to the question of nourishment is the question of place and climate. Nobody is free to live everywhere [...] The influence of the climate on metabolism, slackening or accelerating it, is so great that a mistake in place or climate can not only alienate people from their task, but can completely rob them of it [...] The tempo of metabolism (Das tempo des Stoffwechsels) stands in direct relationship to the fleetness or lameness of the spirit's feet; for the "spirit" itself is just a form of this metabolism. If you list the places where there are or have been brilliant human beings, where happiness included wit, refinement and malice, where genius almost from necessity made its home, they all have excellent dry air. Paris, Provence, Florence, Jerusalem, Athens – these names prove something: that genius is conditional upon dry air, a clear sky – in other words, on rapid metabolism and the possibility of repeatedly supplying oneself with great and even massive amounts of strength.

I would like to call Nietzsche's view a kind of "climatological regionalism", whose basic assumption is that place has a decisive influence on the rhythm of the human body. If this influence is negative, then protection from the place, a distance, or an economy in the "abuse of extraordinary energies" is desperately required. Is it possible that the effect of the place on the body and its metabolism is positive? Let us read the following passage carefully (Nietzsche 2005: 128):

The following winter, under the halcyon sky of Nice that shone into my life for the first time, I found the third Zarathustra [...] Many hidden spots and heights in the landscape of Nice have become sacred to me by unforgettable moments; that decisive section bearing the title "On Old and New Tablets" was thought up as I climbed laboriously from the station to Eza, that wonderful Moorish aerie – my muscular agility has always been at its greatest when my creative energy is in full flow. The body is inspired: let's leave the "soul" out of it [...] You could often have seen me dancing.

Nietzsche delineates a kinaesthetic correlation between the place and body, for the sake of creative inspiration. Inspiration in *Ecce Homo* is presented as an ecstasy of the human body oriented towards the outside, a kind of "opening" to the environment or place (Nietzsche 2005: 126–127). According to Nietzsche, inspiration has two main features or attributes, which I reconstruct as the deterministic necessity of a quasi-natural phenomenon (metaphors involving lightning, torrents, and storms) and the architectural metaphor of the freedom of a rhythmic instinct of spatial relations and connections (*ein Instinkt rhythmischer Verhältnisse*) that bridges, like an arch. It has contradictory properties: necessity and freedom, as well as nature and architecture. As a conclusion, I argue that the German thinker-poet's interpretation

of the concept of "place" is ambiguous, vacillating, uncertain, and precarious: it is governed by the oscillation that characterizes the dialectical conflict between the body and its material environment, the self and place, the I and its *Umwelt*. It is a dynamic, kinetic, ever-changing dialectic of attraction/repulsion, fusion/distance, and identification/alienation. This ambiguous dialectic (diffusion/excision) shows that, for Nietzsche, place is not something static (nor is the body/ego). The body/ego's relation to place shows a dynamic, conflicting, agonistic character, that is sometimes more peaceful, and at other times more pugnacious, expressed as strife between opposing forces: as a struggle between control and determinism, or freedom of choice and necessity. I argue that in order to understand the nature and physiognomy of Nietzsche's spatial imagery and architectural metaphorologies, we have to adopt and delineate a new, original, wholistic concept: that of "entangled spatialities".

ENTANGLED SPATIALITIES

According to the dictionary, the verb "entangle" means: (1) to twist together so that disengagement is difficult or snarl, (2) to complicate or confuse, or (3) to involve inextricably, as in difficulties (Davies 1969: 240). Moreover, a "tangle" denotes an intertwinement in a confused mass, or a jumbled state and condition (Davies 1969: 708).[7] According to *Roget's Pocket Thesaurus*, the word "entangle" creates connotations of crossing, junction, derangement, embroilment, disorder, irregularity, disarray, dislocation, disorganization, confusion, discord, and quarrels. (Mawson 1967: 14, 18–19, 62, 209, 348). An entanglement reminds one of a trap. Summing up the above short "grammatical" and "etymological" research, I could claim that bringing into disorder, wrapping and twisting together, and interweaving elements into a perplexing whole, leads to a complicated spatiality. I am interested in the expression "entangled spatialities" to shed light on Nietzsche's "architectures", because it perfectly captures the intricate confusion as well as the contentious and conflicting interaction between the self and place already highlighted in *Ecce Homo*. The connotations of derangement, embroilment, disorder, dissension, and discord match well with the core metaphor of the labyrinth, as articulated by Nietzsche in *Daybreak*. I propose the following possible spatial models for the design of Nietzschean architectures: the tangled skein, the net, the spider's web (Kofman 1993: 69–73), the blended mesh, the matting, the loop, the tissue, the membrane, and the dynamic grille. The core attribute should be *imbrication*: having adjacent edges overlapping, or imagining a complex convergence of lines, surfaces, volumes, or liquids.

I deliberately use the term "spatiality", rather than "space", to imply that Nietzsche has not developed a systematic, coherent, and cohesive theory of space on a cosmological or epistemological level (Small 2001: 8–14, 65–66). What I have claimed above that he does do is to use "spatialities" as conduits and metaphorical markers to describe the psychological and experiential texture of the self in its articulation and resonance with the world, the Earth, and the place-environment. In Nietzsche we do not have ideas and concepts of space so much as geo-philosophical forms of spatializations akin to contemporary versions of spatial humanities, geocriticism, spatiality studies, chronotopes, spatial history, and literary geography,

[7] https://www.merriam-webster.com/dictionary/entangle#word-history (accessed 23.2.2023)

as eloquently analysed by Robert T. Tally Jr. These are versions of "spatializing actions", where the emphasis is on the *production of spatialities by the living body* (Tally 2013: 3–5, 8–9, 43, 56, 80, 94, 114, 130, 140–145).

As we have seen, the structure of Nietzsche's spatial thought is organized metaphorically. I am obviously referring to Hans Blumenberg's fundamental insight into the formative role of metaphors in the structuring of human experience. Metaphors enable man to survive by selecting those aspects of the "absolutism of reality" that help an individual to make up for the poverty of his instincts: in this view, metaphors constitute for Blumenberg the substructure or basement of thought preceding concepts (Adams 1991: 156–157). What kind of "spatiality" is expressed and organized in Nietzsche's substructure of thinking? Graham Parkes discusses a hydrodynamic-hydrological-economic model for organizing metaphorical images. Geographical oppositions (e.g. north-south) become zones of the soul that collide (Parkes 1994: 139–142, 146, 153).

In Nietzsche's major work *Human, All-Too-Human*, these geographic soul zones essentially establish and spatialize a "medical geography" that relates the atmosphere and "spiritual climate" of Earth's places to specific conditions of health or healing of the mind and body (Nietzsche 2009: 482). In this peculiar fusion of physics, geography, hygiene, physiognomy, and affects, space is no longer a transcendental a priori, in the Kantian sense, but rather a mutable "material" disorder, whose multiple formations or diverse configurations trigger, express, denote, and signify "character-spaces" (Mendicino 2018: 83–99). As David Farrell Krell has shown, the "spatiality" in Nietzsche is that of the *living, kinaesthetic body*, which engages with the flesh of the world in a web of gaps, a network, an interstitial tissue, or a reticulation, paving the way for Maurice Merleau-Ponty's thought (Krell 1991: 44–45, 49). Nietzsche "somatizes" thought, highlighting the reciprocity or the resonance between cognition, body, physiology, and place. Nietzschean ideas have a location in the physiology of the drives, in the flesh, inaugurating a "somatization of philosophy" (Hughes 1996: 32–34).

ARCHITECTURE, METAPHOROLOGY, AND DESIGN CREATIVITY: TRANSCENDING HYPERMODERNITY AND PRESENTISM

According to Gilles Lipovetsky, hypermodern times are stimulating and instigating extreme processes of individualization that have already been exacerbated since the end of the 1970s, with the rise of postmodernism. Hypermodernity, according to Lipovetsky, is characterized by what he calls a *presentist temporality*, where the centre of temporal gravity has shifted from the future (and the past) to the present. The hypermodern version of "presentism" is governed by a rampant individualism, uncertainty and the "dictatorship of short-termism": Lipovetsky believes we are entangled in time-wars, where space is absorbed into a regime of "time against time". This oblique and slippery spatiality is characterized by social disconnection, the commercialization of lifestyles, insecurity, flexibility, and anxiety: the absence of stable spatial frameworks leads to ephemerality, precariousness, and the ecstasy of permanent novelty that is supported by new, powerful information technologies (Lipovetsky 2005: 29–55).

I claim that hypermodern spatialities, especially the World Wide Web of the Internet, resemble Nietzschean tangled skeins, but fail to capture the bodily focus of his thinking. More specifically, I argue that Nietzsche's complex spatialities provide us with strong epistemological presuppositions and a critical, heuristic device for a clarification of the disciplinary matrices of hypermodernity, *if we invert their bodily origin and kinaesthetic logic into a digital cloud*. We are trapped in the labyrinth of heterogeneous informational landscapes, in a maze-like situation of presentism that often looks and feels like a prison cell, a mesh, or an n-dimensional web. This web is the work of an invisible, narcissistic spider that creates a Piranesian multidimensional maze. These spatialities are confrontational, diabolical, and do not resolve into a harmonious, peaceful totality: they are agonistic. Moreover, they resemble Manuel Castells's "spaces of flows", namely "the technological possibility of organizing the simultaneity of social practices without geographical contiguity" (Hubbard 2004: 74): we are confronted every second with a flowing field of avatars, images, personas, fake news, atomistic reflections, solipsistic dreams, and strange simulacra. Hypermodernity builds a world-jail with voluntary prisoners, a "timeless time" in tension with chronological time and the space of places (Hubbard 2004: 75).

I argue that "entangled spatialities" are the phenomenon that predominantly characterizes hypermodernity: the main feature of these types of space is confusion and utter chaos. That is, the fluidization and liquidation of the classical or traditional conceptual bipolar conceptualizations of space as an architectonic and hierarchical place: interior/exterior, private/public, above/below, figure/background, digital/analogue, immaterial/material, landscape/building, floor/ceiling, here/elsewhere, proximity/distance, self/other, lie/truth, and subject/object. Conceptual confusion, generalized disorientation, lack of order, coherence and meaning, the dissolution of focused place, the disconnection of life trajectories, and social decoupling: all these merge and contribute to the "articulation" and "clustering" of entangled spatialities into an assemblage. Hypermodernity is a challenging era that us highly contested and ambiguous.

Is there a narrative thread, a set of ethical guidelines, a political string, or sequence of thinking that can lead us out of the digital labyrinth, to the space of the outside? Or, if we cannot escape the hypermodern labyrinth, should we agree with Karsten Harries' claim (1988: 37) that "There are cases where what is needed is an Ariadne's thread leading into the labyrinth"? Granted that an exit is not possible nor desirable, only one solution emerges, according to Harries: "... the Leitfaden des Leibes, the guiding thread of the body... Nietzsche would have us come home... but he understands this homecoming not as an ascent to a timeless realm of pure forms but as a descent into the chaos" (Harries 1988: 40–41).

I argue that we should interpret Harries' interesting reconstruction as an entangled spatiality between the body and the Earth: an intermediary spatial structure, vaguely resembling Edward Soja's concept of *thirdspace*, without its harmonious and "trialectic" connotations. According to Soja, "firstspace" is the real, material world, "secondspace" denotes imagined representations of spatiality, and "thirdspace" acts as a bridge between the two: "everything comes together in Thirdspace: subjectivity and objectivity, the abstract and the concrete, the real and the imagined, the repetitive and the differential, structure and agency, mind and body..." (Latham 2004: 272). If thirdspace is considered discordant, quarrelsome, and dissonant, it could provide us with one possible guiding thread into the digital, hypermodern labyrinth: I

claim that it captures the contradictory and incongruous imbrication of the bodily affects with the ground of our existence, the *Umwelt* of our organism. This polemical entanglement will reveal the power of the Nietzschean metaphor of the labyrinth, which acts like a *Sprengmetapher*, following Hans Blumenberg's term (Harries 1988: 42): an *explosive metaphor*, which, like dynamite, opens the depth of the subsoil and ground of our existence, the abyss. This depth will permit us to transcend the highly contested spatial jumble, vortex, and patchwork of hypermodernity's smooth spatialities. Architecture could play a crucial role in this complex process, by providing us with guiding spatial threads. Here the key concept is *emplotment*. Architecture should act as the centre of ordering and framing spatial devices, filtering irrelevant information, thus instituting a coherent narrative of our life. By introducing meaningful mental frames and metaphors that help us orientate into the hypermodern dark labyrinth, architectural design creativity can trigger coherent trains of thought, meaning, and hierarchy. Architecture's goal is the edification of possible, imaginary, fictional worlds that possess an inherent structure of intelligibility that enables them to be implemented in reality: cosmo-poiesis is the only device we have left to navigate ourselves into the vast seas of hypermodern informational landscapes. I believe that architecture and metaphorology should be amalgamated into a new and original design methodology. Architecture as a mythopoetic activity can build conceptual tools, strands, yarns, and filaments that will help us untangle, unravel, and comb out the hypermodern spatial mysteries.

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BIM FOR CATHEDRALS: FROM A CONVENTION'S DEBATE TO A REAL APPLICATION OF HBIM

PAOLO FIAMMA, SILVIA BIAGI

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ABSTRACT

After 7 years, the article recalls the futuristic event in which the use of *Bulding Information Modelling* for European Cathedrals was sensitized and proposed. The theoretical debate held in Pisa in 2016 finds today concrete applications of what were exposed as theoretical extensions of the BIM method. In fact, the BIM Heritage, a meaning established to apply the method to the existing heritage, becomes effectively usable for the particular category of Cathedrals. After the presentation of the state of the art of the BIM's method and the perspectives of experimentation advanced in 2016 (which are confirmed with some current examples), the technical and cultural aspects that find benefits with HBIM are studied. In the discussion it is shown that, not only in Italy but also in other European countries, HBIM's attention to Cathedrals has increased; The same countries discussed during the conference: chance or merit?

1. INTRODUCTION

The “Opera Primaziale Pisana” (OPA site) proposing for the first time in Europe the theme of *Building Information Modeling* BIM for Cathedrals (Opera della Primaziale Pisana, 2016), offers to the world scientific community a privileged opportunity to reflect on some central themes in the cultural debate that characterizes our time, in the relationship - always fascinating - between tradition and innovation. Specifically, in fact, the theme of new technologies for the development of methods for intervention on monumental assets is proposed by including one of the most current innovations in the *Architectural, Engineering and Construction AEC sector* (Quattrini, 2017 pp.129-139).

It is necessary to highlight the importance of this choice and its absolute novelty: the Cathedral represents, as is known, the summit testimony of the Christian construction tradition, welcomed and recognized as a moment of awareness and expression of the belonging of a people who have been going through human events for two thousand years.

Far from obvious, therefore, the proposal to address the protection of this construction, with a particular type of technological innovation, developed by the progress of the *Information and Comunication Technology* ICT: the so-called informatic "revolution" characteristic of recent decades (Rey, 2013 pp.697-704).

Here, then, the culturally authoritative proposal to welcome in a conference of such historicized prestige a field of knowledge so recent to the point of not finding, often, comparable attention in the same construction chain in Italy.

2. STATE OF ART: ORIENTED PARAMETRIC SYSTEMS DOR INTERVENTIONS ON THE CATHEDRALS

The *Building Information Modeling* B.I.M. is a field of research, born in the mid-seventies in the United States, which has developed a method of modeling the information of the building (with an extensive meaning: of the construction) where the traditional process of *design, construction and management* of a work is derived - and biunivocally connected - to a three-dimensional model *object-oriented* (Fiamma, 2023).

In summary, the process-product is carried out in a virtual environment where the product is a dual of the real one and which is therefore composed of constructive elements with the same characteristics as the real ones, installed and interconnected according to the real construction rules.

Each "oriented" element is present with all its characteristics, contained in a particular type of digital format that combines geometric, aesthetic and formal aspects with material, economic, maintenance information, etc. At any time of the product process it is possible, therefore, to integrate, modify or extract objects and attributes of the future artifact before it is built by all the figures involved.

This "3D’s object-oriented model" of the future artifact becomes the database of the information that guides and controls, in addition to the design one, also the phases of implementation of the intervention and maintenance management. The B.I.M. method allows to obtain considerable savings in time and costs, optimizing choices, preventing errors during construction and avoiding surprises in the maintenance phase.

The Prof. Fiamma, one of the article authors, as a chairman of the session on BIM, had the responsibility to highlight how the proposal to use BIM for the protection and enhancement of Cathedrals constitutes, for all scholars and operators in the sector, not only a theoretical challenge (regarding the possibility of applying to the Cathedrals technologies born to design the new), but a significant incentive to start an experimentation phase that will be the only tool for concrete verification of the advantages of BIM for the cultural heritage of all countries.

Today BIM is a consolidated method but to reach this goal it was necessary a long phase of experimentation, conducted with conviction and tenacity by its creator, known and recognized internationally: Prof. Charles Eastman (Eastman, 1974). In the disciplinary field of construction, it is extremely rare the case of a researcher who is objectively considered, by all, as the precursor and the greatest world expert in a new professional field and in research.

Since 2004, in the United States about the 80% of public works have been carried out with BIM, where it is required by law to be applied for public works; also in some countries in Northern Europe and Asia it is required but not use. The considerable savings in time and costs that was documented, wherever it has been applied, keep the method at the public attention before the political attention.

The fact that in the United States, obviously, there is no monumental heritage like the European one did not allow us to evaluate the applicability of the BIM method for cultural heritage, besides technical and methodological specific reasons of a certain type of construction; things that we can do today and it is express as aim of this paper.

3. LIMITS AND PERSPECTIVES OF EXPERIMENTATION: FROM YESTERDAY UP TO DATE

In 2016, the application of BIM for monumental heritage was all to be tested and verified, especially to have objectively documentable values on a statistical basis of its advantages.

Thus was born HBIM (H for *Heritage*); An area that did not start from a technical and methodological awareness but that had an experimental character that led it to an exponential increase in interest.

The importance of the building stock and the need to optimize economic resources, have pushed operators to look for new approaches: the proposed objective, more than 5 years ago, was, therefore, to start a concrete experimentation of this method in order to its correct evaluation.

At the time it seemed necessary to avoid taking for granted the applicability of a method to new areas, without having deeply assimilated it in its original value, and moreover it was considered important to maintain the awareness of contributing to the formation of widespread knowledge, called to validate. Since there have been no practices, already codified, to be applied in the BIM approach for Monumental Heritage, this was probably the most stimulating point that led to its rise.

Without undue disciplinary appropriations, the field was totally open to the only HBIM possible: that of experimentation. In fact, Prof. Charles Eastman, father of BIM, supervisor at the 2nd level Master on BIM at the University of Pisa (UniBIM site), said that Italy can be the appropriate country for BIM experimentation in historicized and monumental areas.

The purpose of the network of European Cathedrals is, therefore, the invitation to seize, together and critically, this great opportunity.

To date, many HBIM application methodologies are proposed on the market based on the specific requirements to be achieved. For this reason, for example, some authors (Cursi, 2022) propose a relational or ontological approach: the first oriented to the satisfaction of information related to the restoration process (integration with external database); the second oriented to the representation of computable knowledge (coherent, accessible and comrutible model). See Figure 1.

3.1 Technical aspects

The strongest need to overcome technological limits consist precisely in the nature of BIM, which is based on three-dimensional models with oriented objects completely different from the usual merely geometric 3D models.

A BIM's model is a digital object that has graphic information (shape, color, size, etc.) and alphanumeric information (the material of which it is made, its cost, the characteristics of implementation, management, duration, etc.).

In summary, the process of design, construction and maintenance of an intervention is combined in a bijectively way with an object-oriented model, which are already known and available, at least in parametric form.

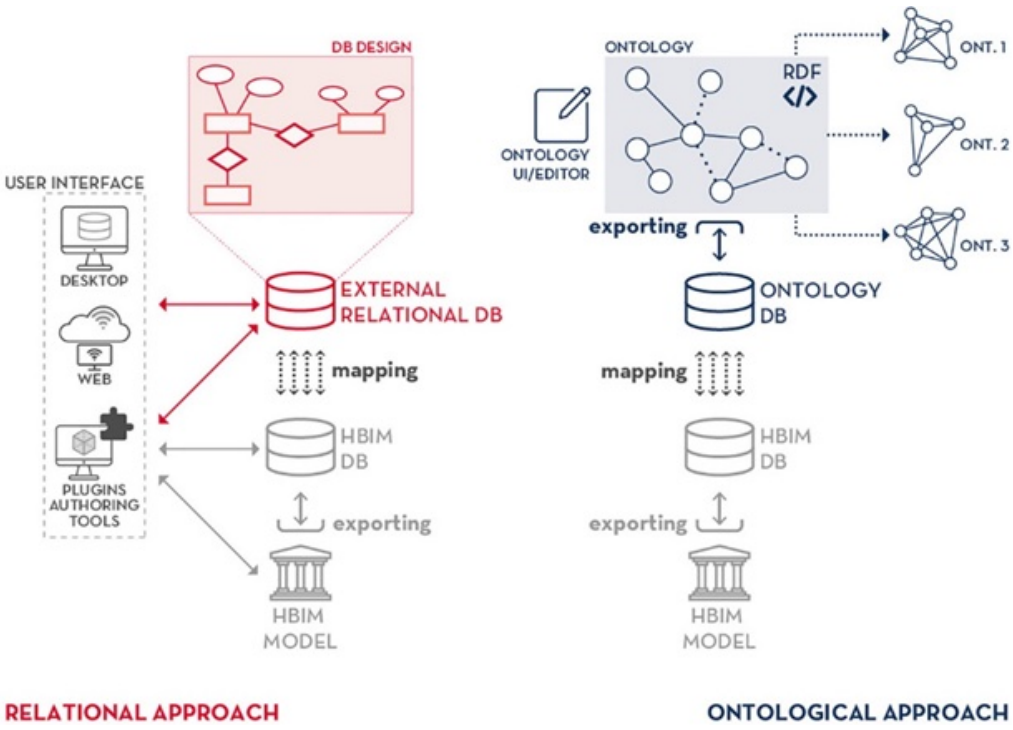

Figure 1. Graphical abstract. Relational Approach vrs Ontological Approach. Imagine of (Cursi, 2022)

The BIM's method is based on a wealth of knowledge already known, from which it draws to proceed (oriented 3D models are given publicly by the manufacturers of the corresponding real objects).

The oriented objects combining each other, according to the automatisms of the dedicated digital resources, allow to verify a huge number of possible combinations of components and their behavior on site, according to simulation (for example also from the thermo-hygrometric point of view).

When the options change, the model is automatically reconfigured, providing all the data related to the new scenario. The choice identified is not the first considered acceptable but is "the best" from the point of view of all the factors on a game.

The objectivity of the BIM's model can accurately prefigure an intervention: it includes economic evaluations, not uncertain but reliable; and avoid costly and complicated changes along the way.

This availability of oriented models, which characterizes the design of the new, is absent for historical buildings and even more for monumental ones (Radanovic, 2020).

A reinforced concrete pillar, for example, will have shape and material that, we know, vary within a certain range of characteristics; the column of a monumental asset, on the other hand, has a very high number of factors that can differentiate it, even just for geometry and historical period.

It becomes, therefore, practically impossible to have digital resources able to have parametric objects in memory congruent with the needs of an automation that is based on ontologies already configured.

Without existing object libraries, parametrically variable, we must consider that the BIM phase cannot begin.

5 years ago it was theoretically believed that a contribution could be given by the implementation of investigation methods, which did not present technologies capable of automatically recognizing the different ontologies present, for example, in a wall from a photo or from a point cloud (A problem of artificial intelligence and machine learning that configures a fascinating research perspective) (Ariza-López, 2022).

Even today there is a tendency to get around the problem: trying to draw objects manually and then push them into the model; or trying to go back to the three-dimensionality of the object, manually extracting the complete geometry of its shape, guessable from its visible part in the relief (Pepe, 2021 pp.115-125) and (Moyano, 2022). See Figure 2.

It is important to note that the time and cost involved in creating oriented objects cannot be considered in assessing the effectiveness of BIM for cultural heritage. BIM, in fact, is applied (and evaluated) starting from the availability of oriented objects.

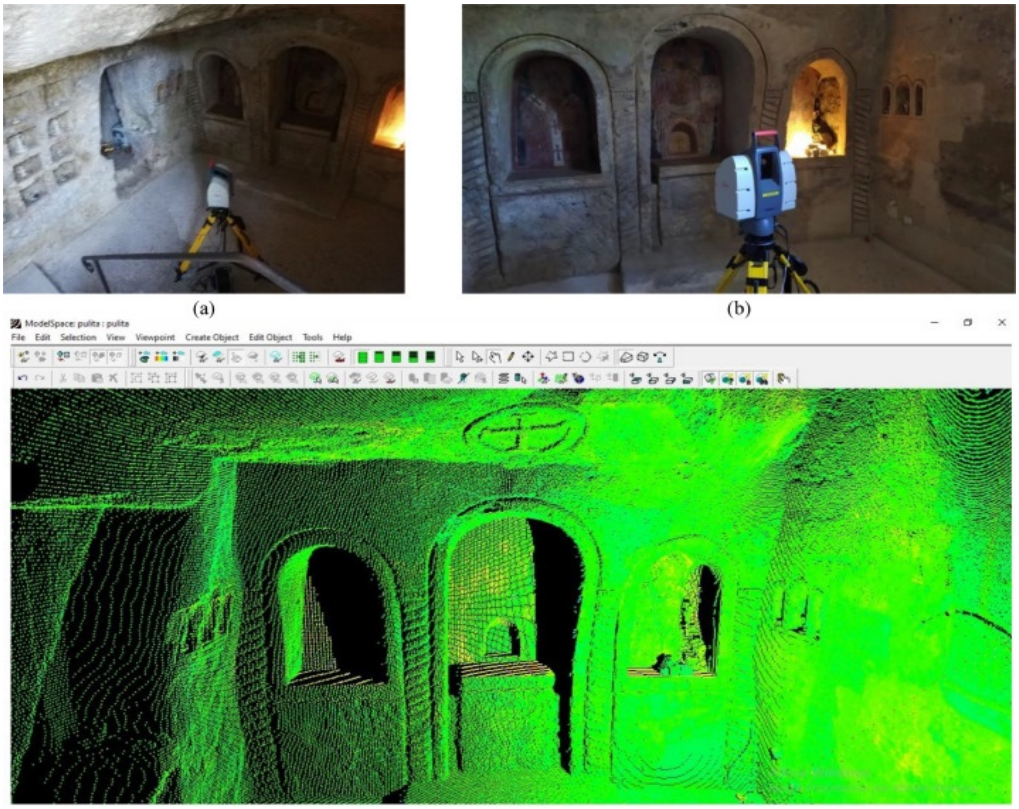

Figure 2. Survey by TLS: TLS used for rock church survey (a, b), viewing in Cyclone software of the point cloud (c). Imagine of (Pepe, 2021 pp.115-125)

3.2. Cultural Aspects

This technological limit, for the acquisition of constructive ontologies in the field of BIM for Heritage, has not prevented the flourishing of an ever-increasing number of case studies and professional applications.

In the Conference's session of 2016 have been presented some experimental applications that can be consider the first pilot cases, for the grandeur of the work and representativeness of the buildings. In fact, BIM, being a method, can still be applied offering advantages.

The historicized dimension of knowledge of an asset such as a Cathedral, in fact, presents a complexity of content and investigation which can benefit from an immediate form of understanding of the constructive element that will be progressively enriched with cognitive data.

The amount of data connected to a specific element through the centuries, for example, can justify the need to realize the oriented model that represents it, which will relate to the other models according to the BIM's system logic (Allal-Chérif, 2022).

The perspective is to reconstruct a knowledge as the construction of the model progresses. In fact, there are very frequent cases in which data relating to a construction and its maintenance over time are not available.

For this purpose, the articulation of skills that rotates around a work, such as a Cathedral, leads to reflect on the importance of a method that optimize different technical and cultural contributions, which must be composed and addressed according to an interdisciplinary logic.

BIM's method allows to combine "immediacy" and "complexity" of the information, allowing a query of the model data that always takes place in an interactive way, both between the model and the single discipline, and between the disciplines themselves.

The result is a process in which the clarity and traceability of information become a real added value, proportionally to the value of the artefact: as, for example, for Cathedrals.

According to the BIM's method, a model for the knowledge of the work could be compose: the information stratified over time, can be extracted at any time, as well as new ones can always be inserted, or reconfigured, as a whole, according to a multiplicity of combinations (Fernández-Mora, 2022).

In agreement with the characteristic of the BIM's model-process, where new information derives, as output, from the interaction and combination of existing ones, and as input, according to an iterative logic between conception and its verification, we can arrive at assuming the characteristics of a form of predictive knowledge at the state of the art.

4. DISCUSSIONS

The Opera della Primaziale Pisana OPA is an institution created to supervise the construction of the monuments of the Piazza del Duomo, as reported by the first stones laid for the construction of the Cathedral in 1064. Since 1999, the OPA has among its institutional purposes the "protection, promotion and enhancement of its artistic heritage" (OPA site).

In October 2016 the VI edition of the International Conference of European Cathedrals was organized by OPA, dedicated to "new technologies". On this occasion, it was discussed how to apply the BIM to the maintenance of the Cathedrals: in fact, the model simultaneously contains information deriving from multiple sectors and it is possible to accurately plan restoration and conservation interventions that intersect with each other at every stage of the design, from the architectural to the executive one (Opera della Primaziale Pisana, 2016).

The Italian Cathedrals proposed as a case study were: the Cathedral of Santa Maria del Fiore in Florence, the Veneranda Fabbrica del Duomo in Milan, the Cathedral of Parma, the Basilica of San Pietro, the Cathedral of Siena, and the Certosa di Pavia. The countries of the other European cathedrals analyzed were: Spain, Germany, Belgium, France, Great Britain and Austria.

Years later, the echo of the debate held in Pisa, finds concrete applications throughout Italy.

As in the case of the research project "CHARMING PISTOIA" (Cultural HeritAge infoRmation ModellING for PISTOIA: from monitoring data to digital twin) (Monchetti, 2023 pp.1988-1995) where the Pieve of Sant'Andrea in Pistoia (Italy) and its masterpiece, the Pulpit of Giovanni Pisano, represents an emblematic case study; the approach is divided into 3 phases: the design of the HBIM to collect the information on the structure and to export them in computational models; the integration of a Structural Health Monitoring (SHM) system to ensure the steady flow of structural information and its updating through Bayesian inference; and the definition of robust computational models for the Joint Vulnerability Assessment of the structure and the works of art inside (Monchetti, 2023 pp.1988-1995).

But also a new scan-to-BIM approach has been proposed in Italy that transforms the point cloud, generated by geomatic surveys, into parameterized objects; See the emblematic example of the church of San Nicola in Montedoro (Costantino, 2021).

In Europe, instead, the laborious task of modeling HBIM has been bypassed by some author with the design of an innovative in-cloud system called BIMlegacy that links the intrinsic HBIM database with documentary heritage databases (Palomar, 2020). As evidenced by Figure 3, San Juan was modeled with the Scan to BIM methodology, a technology that transforms point clouds into geometric elements. Subsequently, the centralized model has allowed the development of sub-projects of an urban, architectural, archaeological, structural and plant engineering nature.

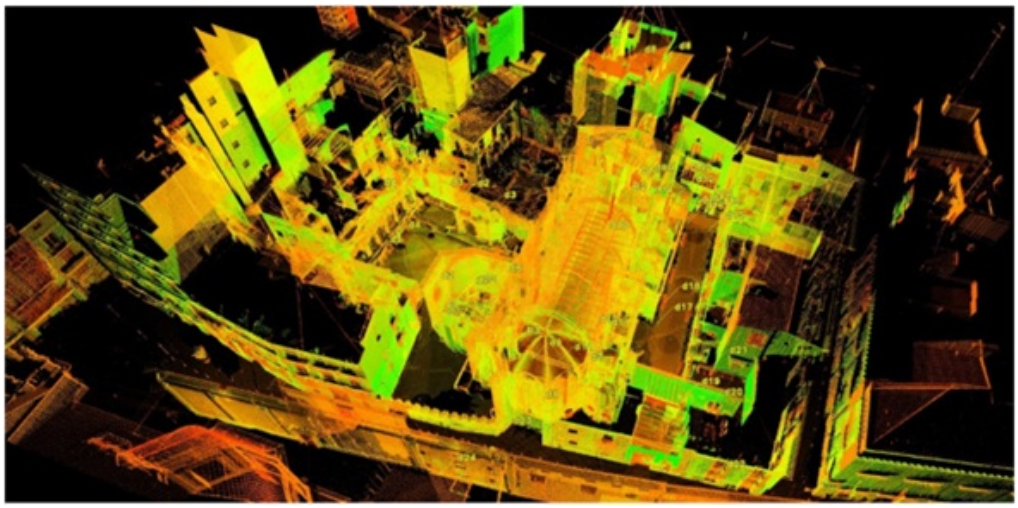

Figure 3. Data collection with the laser scanner in San Juan. Imagine of (Palomar, 2020)

Also in Spain, Web-GIS technology has also been applied to HBIM, using the intuitiveness of the 360° interface and 3D point clouds in combination with the Internet of Things; demonstrating how the real and digital worlds can be linked for proper documentation and management of cultural heritage (Sánchez-Aparicio, 2020).

Organisations have even sprung up that periodically inspect the built heritage to promote maintenance and preventive conservation, such as the Monumentenwacht (Wu, 2021 pp.92-107). In their working mode, as for example presented with a case study in Belgium, they converge in the information model: the state of the art deriving from HBIM models but also the workflow of the inspection work (such as the organization of the inspection team; the collection of inspection reports; and the updating of databases) (Wu, 2021 pp.92-107).

So, in summary, as predicted more than 5 years ago, the experimentation on HBIM has led to different results due: to the lack of basic community theory; to the specific objectives to be achieved; and to the specificity of the reference architecture.

Among the original interdisciplinary solutions that we have reported, developed in recent years, from our country to other EU countries, we have ranged: from the Digital Twin; point cloud automation; the creation of sharing platforms; from Q-Gis services; and new forms of maintenance activities on HBIM.

In other words: there are those who have tried to lighten the point cloud and those who have tried to use the entire scan output; some have created opensource to obtain an organic database and others to collect cultural documentation; finally, there are those who have interspersed the existing modeling in the territorial area to facilitate questionability and those to plan maintenance activities.

Although in different ways and times, they are Italy, Spain and Belgium, together with the Heritage building of France and Great Britain, the countries that have invested in HBIM experimentation of great works such as Cathedrals; the same European countries brought up during the 2016 Conference.

5. CONCLUSIONS

Yesterday, an indication of method, rather than merit, seemed to emerge as an immediate utility for the experimentation of Building Information Modeling, in the context of studies for the protection and enhancement of European Cathedrals.

The complexity of the subject, the interdisciplinary nature of the knowledge involved and the need to optimize operational resources, highlighted a problem of knowledge and knowability of the asset that could be entrusted to this method of information modeling.

In addition, this method encouraged investigation for a structural or architectural understanding and the creation of an interactive database of information layered over the centuries (or yet to be planned).

In the logic of the intervention to be carried out, BIM offered (and offers) certainly indisputable advantages in the continuous control of the process and in the prevention of possible errors in conception and execution, precisely in relation to the importance and value of the works involved, as in the case of the Cathedrals.

Thus takes the name of HBIM the bral that specializes in the study of the existing, which requires customized rules and operational processes as it is very different from the realization of the new.

To date, it is possible to say that the lack of a univocal method for HBIM has freed the experimentation that, with different objectives, has developed in a diversified way, as had been expected.

Raising awareness of the topic has encouraged research in this field in some European countries and from their case studies it will be possible to carry out the first statistical evaluations of the advantages against the traditional process.

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CITIES OF THE METAVERSE – QUESTIONING THE TRADITIONAL APPROACH TOWARDS "AUTHENTICITY"

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ABSTRACT

The emergence of the metaverse has brought forth a new dimension of urbanization, where virtual cities can be created and inhabited by users from around the world. As these virtual cities become more advanced and complex, questions arise about the authenticity of these urban environments. This paper examines the concept of authenticity in the context of metaverse cities, exploring how it is constructed and negotiated. Through a critical analysis of virtual urban environments in the metaverse, this paper argues that the notion of authenticity is subjective and contingent, shaped by factors such as cultural background, personal experiences, and social norms. The paper also examines the implications of authenticity debates for the design and governance of virtual cities, as well as the broader implications for urban planning and development in the physical world. By questioning the concept of authenticity in metaverse cities, this paper contributes to a deeper understanding of the role of virtual environments in shaping our perceptions and experiences of urban spaces, moreover, questioning the tradition approach towards "authenticity" and the notion it is used in.

INTRODUCTION

In recent years, the rapid advancements in technology and the increasing accessibility of virtual reality (VR) and augmented reality (AR) platforms have given rise to the concept of the metaverse. This virtual reality space allows users from around the world to create, inhabit, and interact within virtual cities, leading to a new dimension of urbanization in the digital realm. As these virtual urban environments become more advanced and complex, questions about their authenticity have emerged, sparking debates among users, developers, and other stakeholders.

The notion of authenticity is multifaceted and has been explored extensively in various disciplines, such as tourism, art, and architecture (Cohen, 1988). Authenticity can be understood as the degree to which something is considered genuine, real, or true to its origins (Bruner, 1994). In the context of the metaverse, the concept of authenticity takes on new complexities as it involves the negotiation of real and virtual experiences. Consequently, understanding the nature of authenticity in metaverse cities is crucial for both the development of these virtual spaces and the broader implications on urban planning and development in the physical world.

This paper aims to examine the concept of authenticity in the context of metaverse cities by exploring the factors that contribute to its construction and negotiation among users, developers, and other stakeholders. Through a critical analysis of virtual urban environments in the metaverse, and a through understanding of a phenomenological experience, this paper argues that the notion of authenticity is subjective and contingent, shaped by factors such as cultural background, personal experiences, and social norms. Furthermore, this paper will examine the implications of authenticity debates for the design and governance of virtual cities, questioning the notion itself, and by finally proposing a different notion that would better describe this type of new realm of *"authenticity"*.

AUTHENTICITY AND THE METAVERSE:

The concept of authenticity has been widely debated in various fields, including tourism, where scholars have explored its significance in the context of visitor experiences and cultural representations (Cohen, 1988; Wang, 1999). In art and architecture, authenticity has been discussed in terms of the originality and integrity of creative works and built environments (Guerra et al., 2022).

In the realm of digital spaces, authenticity has been a topic of interest in relation to social media, online communities, and virtual worlds (Baym, 2010; Boellstorff, 2008). The emergence of the metaverse, a collective virtual shared space that encompasses various digital environments, presents a novel context for examining authenticity. The metaverse is not a singular, monolithic entity; rather, it is a collection of interconnected virtual spaces that offer diverse experiences and opportunities for interaction. Within the metaverse, virtual cities have emerged as spaces where users can create, inhabit, and engage in urban experiences that mirror or diverge from their real-world counterparts (Shehade and Stylianou-Lambert 2020).

Authenticity in metaverse cities is not a static or objective quality; it is a subjective and negotiated construct that depends on individual and collective perspectives. Users bring their own cultural backgrounds,

personal experiences, and social norms into the virtual environments, shaping their perceptions of authenticity. Furthermore, developers and other stakeholders play a significant role in constructing and maintaining the authenticity of virtual cities through design choices, governance mechanisms, and marketing strategies (Shehade and Stylianou-Lambert 2020).

Debates around authenticity in metaverse cities have implications for the design and governance of these virtual spaces. As developers seek to create compelling and engaging environments, they must grapple with the challenge of balancing innovation and novelty with a sense of familiarity and authenticity. Additionally, as users from diverse backgrounds interact within these virtual cities, questions of representation, inclusivity, and cultural sensitivity become increasingly important.

The examination of authenticity in metaverse cities also holds broader implications for urban planning and development in the physical world. As virtual and physical urban environments become increasingly intertwined, the lessons learned from the metaverse can inform the design and management of real-world cities, fostering greater inclusivity, sustainability, and innovation. Conversely, the challenges faced in the metaverse can serve as cautionary tales for urban planners and policymakers, highlighting the complexities of negotiating authenticity in an increasingly interconnected world.

VIRTUALITY AND THE PHENOMENOLOGY OF URBAN EXPERIENCE

From a philosophical perspective, the integration of virtuality into city design raises questions around the nature of urban experience and the relationship between technology and human perception. Philosophers have long been interested in the role of technology in shaping our perception of the world, and the advent of virtual technologies has only heightened this interest.

One approach to thinking about the relationship between virtuality and urban experience is through the lens of phenomenology. Phenomenology is a philosophical approach that emphasizes the study of subjective experience, and seeks to uncover the fundamental structures that underlie our perception of the world (Merleau-Ponty, 1962). From a phenomenological perspective, the integration of virtuality into city design raises questions around the nature of our experience of urban space, and the ways in which virtual technologies might shape or alter this experience.

One way in which virtuality might impact our experience of urban space is through the creation of new forms of spatiality. Virtual technologies can create new dimensions of space and time, and can enable us to experience the city in ways that are not possible through physical means. This can open up new possibilities for exploration and discovery within the urban environment, and can challenge our traditional modes of perception and understanding.

However, the integration of virtuality into city design also raises concerns around the potential for these technologies to undermine our sense of embodied experience and connection to the physical world. Virtual technologies can create a sense of detachment or disconnection from the urban environment, and can contribute to a sense of alienation or isolation (Harman, 2010). Moreover, the use of virtual technologies can contribute to the commodification and commercialization of urban space, with public space becoming increasingly privatized and controlled by corporate interests.

From a phenomenological perspective, it is important to approach the integration of virtuality into city design with a critical and reflective attitude. By examining the ways in which virtual technologies impact our experience of the urban environment, we can develop a deeper understanding of the fundamental structures that underlie our perception of the world.

METAVERSE AND AUTHENTIC URBAN LIFE

Authentic urban quality of life is affected by numerous factors, including transportation, housing, health, entertainment, infrastructure, economic opportunities, and education, among others (Luger, 1996). The variations in these factors influence individuals' perceptions of their authentic quality of life. A minimum set of factors, such as socio-economic conditions, environmental sustainability, improved governance, and cultural diversity, is required to ensure an authentic increase in urban quality of life (Pazhuhan et al., 2020).

Cities worldwide exhibit diverse levels of these factors, resulting in varying levels of authentic quality of life for their residents. Modern challenges, such as ecological degradation, climate change, pandemics, economic issues, and insecurity, have caused fluctuations in urban quality of life (Bonifacic, I. 2021). To tackle these challenges, the global community has agreed on SDG 11, which focuses on inclusivity and livability.

Technology has been helpful in addressing urban challenges and improving quality-of-life dimensions. However, technology alone is not enough, as financing challenges persist. The Metaverse offers potential to mitigate some challenges and enhance the authentic quality of life for urban residents by increasing accessibility, equity, and reducing time and resources spent on commuting, renting, and paying for services (Cassauwers, 2019). However, all of this is all available in the virtual world, were life is non-constrained by material needs, hence, food security, shelter, and essential necesseties are not addressed. The only beneficial part on our existential well-being, would be the feeling of importance, inclusivity, and power, to some sort of extent. Therefor, inclusivity is essential to ensure that all urban residents can benefit from services transitioning to the virtual realm. Otherwise, the Metaverse might exacerbate urban inequality. Technology accessibility stratification and discrimination are still present, and tech-savvy individuals drive technology adoption. This limits access for non-tech-savvy individuals, older generations, and disabled persons (Allam et all., 2022).

METAVERSE AND SOCIAL INTERACTIONS IN AUTHENTIC URBAN SETTINGS

One of the authentic urban setting enriched experience, is characterized by diverse cultural strands that emphasize human social dimensions. However, factors such as economy, politics, and socio-economic inequalities complicate social interactions (Liang, De Jong, Schraven, & Wang, 2021). Conventional urban planning models that promote individualism further exacerbate this problem. New urban planning models, like the '15-Minute City' and the 'Data-Driven Smart Sustainable City' (Bibri, 2021), emphasize reducing automobile reliance and encouraging neighborhood interactions.

Despite urban challenges, humans have found ways to interact through social media and social platforms. The Metaverse aims to fill the gap for social interaction by connecting the physical and virtual worlds seamlessly. It is believed to overcome social barriers such as distance and racial segregation, enabling people to interact through avatars (Duan et al., 2021).

However, concerns regarding ethics, privacy, security, and accessibility have been raised (Hackl, 2020). The cost of hardware, such as headsets, may limit access for economically disadvantaged individuals. Additionally, the Metaverse may not accommodate people with physical challenges, particularly the blind and the deaf.

The Metaverse could become a cyber-dystopia, leading to societal disruption (Nye, 2007). This concept envisions a world made worse by technology, where people lose control and become dependent on it. In this scenario, the Metaverse may invade users' privacy and cause anarchy due to the absence of systems and regulations protecting individuals' dignity (Baym, N. K., 2010).

Despite potential negative effects, technology has helped prevent the complete shutdown of urban areas during events such as the COVID-19 pandemic (Sensiba, 2021). The Metaverse may offer solutions to social interaction challenges while also raising new concerns and questions about its authentic impact on urban life.

CONCLUSION

The exploration of authenticity in metaverse cities sheds light on the multifaceted nature of this concept and its significance in shaping users' experiences and perceptions of virtual urban environments. From a phenomenological authentic perspective, authenticity is subjective and contingent, influenced by a wide range of factors such as cultural background, personal experiences, and social norms. The actions and decisions of users, developers, and other stakeholders further contribute to the construction and negotiation of authenticity within metaverse cities.

This paper highlights the importance of considering authenticity in the design and governance of metaverse cities, as it has direct implications for user engagement and satisfaction. By incorporating recognizable elements from real-world cities and promoting inclusivity, cultural sensitivity, and user participation, developers can create more authentic and engaging virtual environments that cater to diverse user needs and preferences. Furthermore, establishing governance mechanisms that involve users in decision-making processes can foster a sense of belonging and ownership, contributing to the construction of a more authentic and dynamic virtual environment. Nontheless, this type of authenticity is a different form of traditionally approached notion of authenticity.

As virtual cities continue to evolve and become more advanced, understanding and addressing the challenges and opportunities related to authenticity will be essential for the successful development and growth of metaverse cities. This paper contributes to understanding of the role of virtual environments in shaping our perceptions and experiences of urban spaces and opens up avenues for future research on the interplay between authenticity, urbanization, and technology.

It is important to note that this is an ongoing research and this reading could be open to many discussions. With the rapid growth of the metaverse and the increasing prominence of virtual cities, the exploration of authenticity and its implications will undoubtedly remain a critical area of inquiry for researchers, practitioners, and stakeholders alike. However, as implications and experiences are framed in the virtual world, authenticity should also be redefined to describe a parallel sense of genuineness in that virtual world. Therefore, this paper proposes a new term to describe the sense of authenticity in the virtual world - "*virtuthenticity*". The continued exploration of "*virtuthenticity*" and its nuances will form an important part of the ongoing discourse surrounding authenticity in the metaverse.

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RELATIONSHIP BETWEEN ABANDONED OPEN SPACES AND PEDESTRIAN FLOW: IN A CASE STUDY OF ANTALYA

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ABSTRACT

As Jacobs (1961) mentioned, a vital urban life relies on the active street life that results from high levels of pedestrian flow. That flow can help prevent adverse effects and ensure the sociability of abandoned open spaces that emerged in the cities due to rapid urbanization and lack of planning. Different terms have been used to define these spaces. For example, Trancik (1986) defined them as lost spaces that no longer serve their design purposes and therefore need to be redesigned and built. He mentioned that they do not contribute positively to their environment and users; they are not well-defined and have no measurable boundaries. Because of these spaces, pedestrians do not prefer to use the surrounding urban area, so the sociability and the usage of that area and commercial areas are negatively affected. Using the pedestrian flow to solve the problems that abandoned open spaces create can be beneficial. The goal of this research is to contribute to the literature by suggesting alternative design approaches to activate abandoned open spaces through pedestrian flow. To achieve this goal, we investigated the relations between syntactical features of abandoned open spaces and the pedestrian flow around them. The hypothesis is that improving pedestrian flow around these spaces can activate them, and to improve it abandoned open spaces should be more visible and integrated with the urban texture. To evaluate the hypothesis, we selected an urban area with abandoned open spaces near the historic city center of Antalya as the research site. The target city contains various scales of multiple open spaces and pedestrian interaction; it is ideal for studying their relations.

With this goal, the following tasks have been conducted. First, determine the locations of abandoned open spaces in the research site. Second, analyze the syntactical features of selected abandoned open spaces. Third, analyze the pedestrian flow around these spaces. Lastly, investigate the relations between the syntactical features and the pedestrian flow. With these tasks, the following methodologies have been adopted. First, we selected a route in the research site and determined the abandoned open spaces on it by observations. We also determined the functions, users, and physical conditions, like being in-between buildings or corners, having empty or occupied neighboring parcels, and having greenery. Second, we

analyzed the syntactical features like connectivity, integration, choice, and visibility of abandoned open spaces using Depthmap. Third, we tracked pedestrian flow on every selected site with systematic observations, one week and one weekend day in three different periods. We counted the pedestrians that passed, used the space with the gate count method, and created maps that show usage and the flow for every site. We also consider the flow of vehicles because it affects the usage of these spaces as parking lots. For the last, we compared the values of syntactical features and the pedestrian flow by correlations and tried to discover a pattern between them.

Finally, we suggest alternative design approaches that help to activate the abandoned open spaces, not as unused spaces but as sociable environments. Activating these spaces can benefit the urban area economically by attracting more pedestrians. These spaces can be converted into usable open areas that offer pedestrians a convenient place to gather and socialize. The expected benefit of this research is that it suggests alternatives to activate the abandoned open spaces by reorganizing the pedestrian flow around them. The limitation of this research is that it was conducted in one urban part of the city. For future research, conducting it in multiple and different textured parts of the city that contain different types of abandoned open spaces will be beneficial to discover a more consistent design approach to help us to understand the relations between abandoned open spaces and pedestrian flow.

KEYWORDS: Abandoned spaces, public open spaces, syntactical analysis, pedestrian flow

1.Introduction

The lack of open spaces in the cities is a common problem, especially in the city centers. The increasing population forced us to make more buildings, and we started to lose the open spaces that are beneficial for social life, according to Whyte (1980). In his book, he mentioned the importance of small urban spaces in improving social life in the cities. In this sense, abandoned open spaces in the city centers have great potential, but they also create problems in the usage of their surrounding urban areas. To unlock their potential, they can be transformed into places where people gather and socialize by improving pedestrian flow.

Research Aim And Objectives

This research aims to contribute to the literature by suggesting alternative design approaches to activate abandoned open spaces through pedestrian flow. The research questions are as follows;

How do the syntactical features of abandoned open spaces affect pedestrian flow?

How can we activate abandoned open spaces through pedestrian flow? What approaches can we suggest to improve the flow around these spaces?

To answer these questions, first, we determined the locations of abandoned open spaces in the selected research site. Second, we analyzed the syntactical features of selected abandoned open spaces and the pedestrian flow around these spaces. Lastly, we investigate the relations between the syntactical features and the pedestrian flow.

Scope And Limitations

In the scope of this research, we selected an urban area with abandoned open spaces near the historic city center of Antalya as the research site. The target city contains various scales of multiple open spaces and pedestrian interaction; it is ideal for studying their relations. The expected benefit of this research is that it suggests alternatives to activate the abandoned open spaces by reorganizing the pedestrian flow around them. The limitation of this research is that it was conducted in one urban part of the city.

Methodology

First, we selected a route in the research site parallel to the main streets and determined the abandoned open spaces on it. Then we determined the functions, users, and physical conditions, like being in-between buildings or corners, having empty or occupied neighboring parcels, and having greenery by observations. Second, we analyzed the syntactical features like connectivity, integration, choice, and visibility of abandoned open spaces using the Depthmap program. Third, we tracked pedestrian flow on every selected site with systematic observations. We made the observations in two days, one weekday and one weekend, and in three different periods, 10:00 am, 3:00 pm, and 8:00 pm, for 10 minutes. Thus, we reached a more general opinion about the selected sites. We counted the pedestrians that passed, used the space with the

gate count method, and created maps showing usage and flow for every site. We also consider the flow of vehicles because it affects the usage of these spaces as parking lots. For the last, we compared the values of syntactical features and the pedestrian flow by correlations.

2.PEDESTRIAN FLOW AND ABANDONED OPEN SPACES

As Jacobs (1961) mentioned, a vital urban life relies on the active street life that results from high levels of pedestrian flow. It is vital to explore the factors most likely to create valuable public spaces to turn the underused urban voids into lively and utilized spaces for urban core activities (Velazco, 2010). Pedestrian flow can help prevent adverse effects and ensure the sociability of abandoned open spaces that emerged in the cities due to rapid urbanization and lack of planning.

Different terms have been used to define these spaces. For example, Trancik (1986) defined them as lost spaces that no longer serve their design purposes and therefore need to be redesigned and built. He mentioned that they do not contribute positively to their environment and users; they are not well-defined and have no measurable boundaries. According to Sung (2009), abandoned open spaces are more than just vacant lots; they can be unoccupied. They can be unused spaces between two apartments, an incomplete sidewalk, or an undefined green area that people do not use. They are usually unsafe spaces that are no longer in use. Some of the definitions Carmona (2010) made for urban spaces match the features of abandoned open spaces. For example, he defines leftover spaces as those left over after development, often designed without function. Carmona defines undefined spaces as undeveloped spaces that are either abandoned or awaiting redevelopment. He collected both defined spaces under the title of negative spaces.

Gehl (1987) mentioned that the quality of the physical environment could influence the types of activities that could happen in open spaces. That spaces should be designed at a human scale and well connected to their environment. He also mentioned that pedestrian, rather than vehicular flow, should be prioritized. He emphasized the importance of connectivity as a principle that needs to be considered to develop abandoned open spaces. Connectivity is one of the spatial configurations, and we can use space syntax, a set of techniques for describing and analyzing spatial configurations developed by Hillier and Hanson (1984). This study focused on spatial configurations such as connectivity, integration, choice, and visibility.

3. CASE STUDY

To investigate the relations between syntactical features of abandoned open spaces and the pedestrian flow around them, we selected an urban area with abandoned open spaces as the research site (Figure 1). Antalya contains various scales of multiple open spaces and pedestrian interaction; it is ideal for studying their relations.

Figure 1. The location of the selected urban area

The urban area we selected contains many abandoned open spaces with much potential. It is located near the historic center of Antalya. Işıklar and Atatürk Street continue at the periphery of the historic city center and separate the center from the research site. These streets and the pedestrian route near them are heavily used, but the roads in the research site are not used intensively. The site has a similar urban texture to the historic city center, but people do not use it as much. This contrast also makes this urban area interesting.

In Figure 2, we can see the crowded pedestrian route near the main streets with red. It separates the Historical Center, Karaalioğlu Park, and the research site. We did not focus on every abandoned open space on this site; instead of that, we determined a route, with blue, that is parallel to the main Streets. That is the only continuous route that connects the same roads with the main Streets in this site. We selected this route because it contains the potential as an alternative to main streets but is comparatively less preferred.

Figure 2. Selected route in the research site

We determined the abandoned open spaces on this route by making observations at the research site, and we eliminated the ones that belong to hotels. So we focused on six sites with different physical conditions and syntactical features. In Figure 3, we can see the locations of these sites.

Figure 3. Abandoned open spaces in the selected route

Evaluation of Selected Abandoned Open Spaces

In this part we evaluated the abandoned open spaces we selected. In Table 1, we can see the photos of each site. Site 1 is a parking lot and in-between buildings from three sides. There are no empty parcels around it, and it has no greenery. Site 2 is a parking lot and a place for homeless people to stay. It is on the corner, and there are roads on two sides of it. There are no empty parcels around it but one of the buildings near is damaged. It has trees in some parts. Site 3 is not used at the moment. It is in-between buildings from two sides, there is a road on one side of it, but it is close to a corner point. There is an empty parcel on the back side but no connection with the back road. It has greenery.

Site 4 is used as a parking lot. It is in-between buildings from two sides, and there is a road on one side of it. There are empty parcels on the back side, connected to the back road. It has greenery. Site 5 is used as a parking lot. It is on the corner, and there are roads on two sides of it. There are no empty parcels around it, and it has no greenery. Site 6 is used as a parking lot. It is in-between buildings from two sides. There is a road on one side of it, but there is a wall that weakens the connection with the road. There is an empty parcel on the back side but no connection with the back road. There are trees in some parts.

According to that observation, Sites 1, 3, and 6 are similar to having only one connected side, and Sites 2, 4, and 5 have two connected sides with the environment.

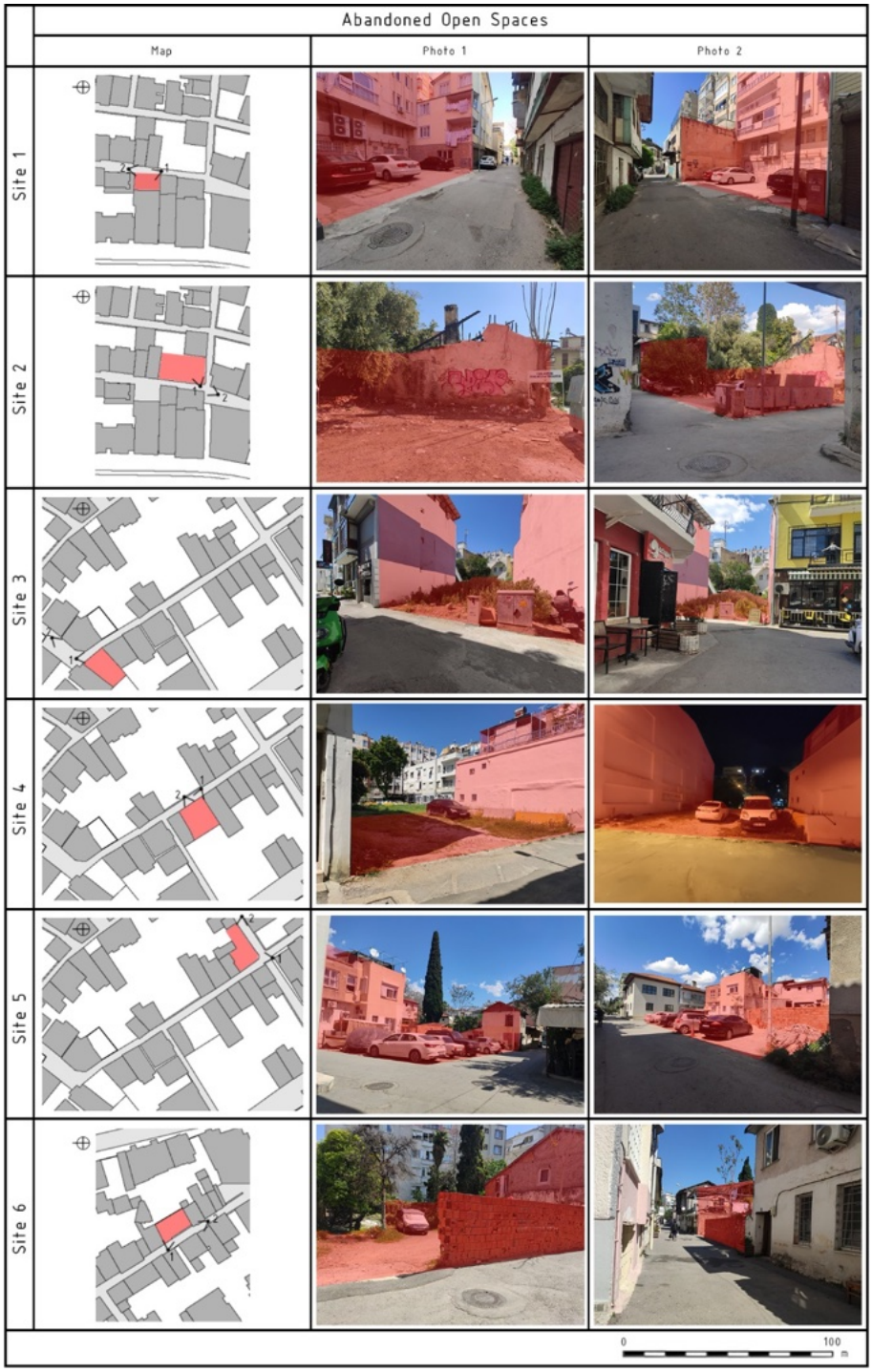

Table 1. Maps and the photos of selected sites

Analysis of Syntactical Features and Flow

Syntactical Analysis

After evaluating selected sites, we made syntactical analysis in the selected urban area. Table 2 shows the maps of the connectivity, integration, choice, and visibility. In the maps, the red parts of the network show the highest values, and the blue parts show the lowest ones. The gray dots show the selected sites, and we

determined the values of each variable on each site. According to these values, Site 2 and 4 have the highest connectivity and choice values, Site 2 has the highest integration value, and Site 4 has the highest visibility.

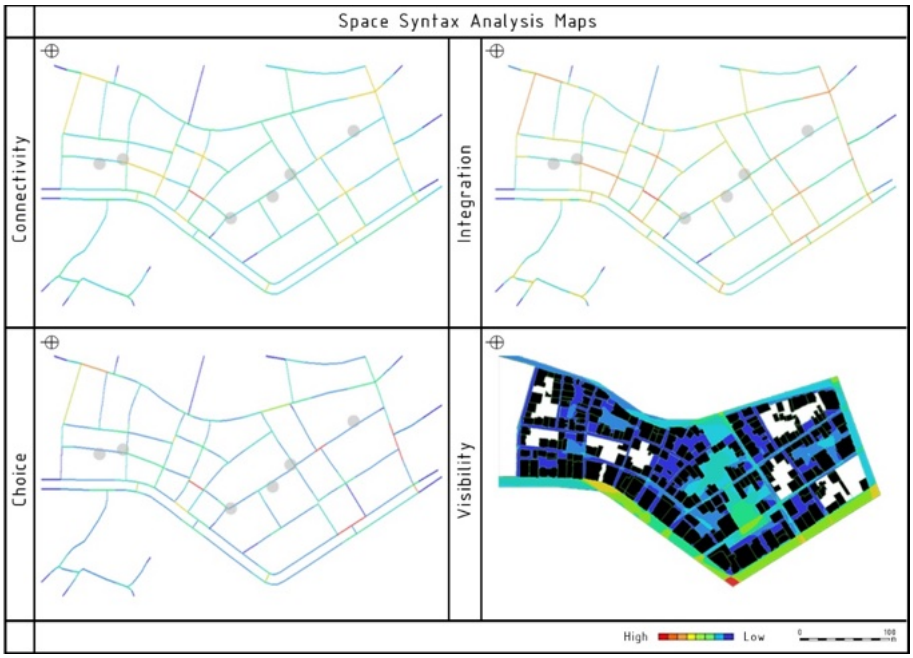

Table 2. Maps of Syntactical Analysis

Flow Analysis

In addition to syntactical analysis, we analyzed the flow around the selected sites. We started with a focus on pedestrian flow, but the flow of vehicles was also relatively high and essential because the sites are used as parking lots. So we also add the vehicle data we collect, such as bicycles, motorcycles, scooters, and cars. Table 3 shows the flow maps of each site during every observation time, on a weekday and a weekend. According to the table, Sites 5 and 3 have the highest flow, and Site 2 follows them. Being in the corner can be effective for Sites 5 and 2. For Site 3, being close to a corner point can be effective.

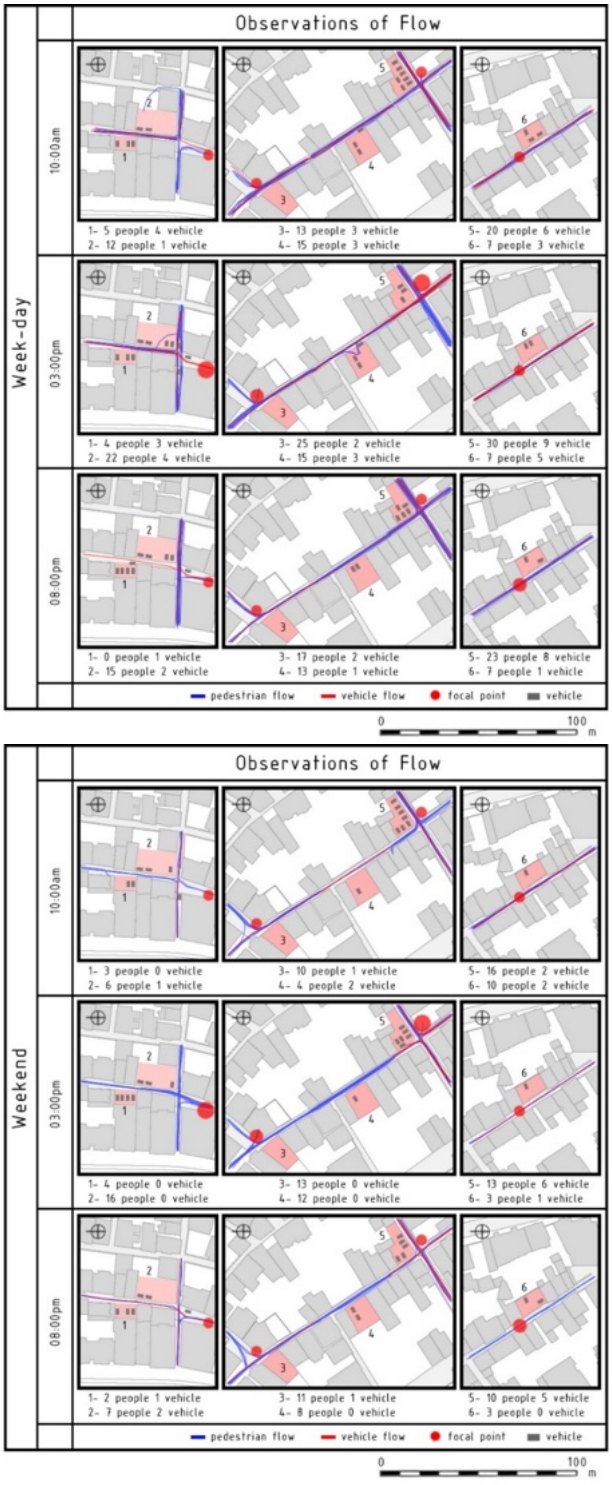

Table 3. Observation of flow in week-day and weekend

Figure 4 shows the number of pedestrians and vehicles according to the observation times on each site. Changes in the number of pedestrians and vehicles are similar on weekdays and weekends, so we evaluated them as total. In most sites, pedestrian flow is low in the morning; it increases in the afternoon and decreases in the evening again. The usage is high in the corner sites. Vehicle flow is almost constant in most sites, but in Site 5, it increases during the day. It is related to the high capacity of this site as a parking lot compared to other sites.

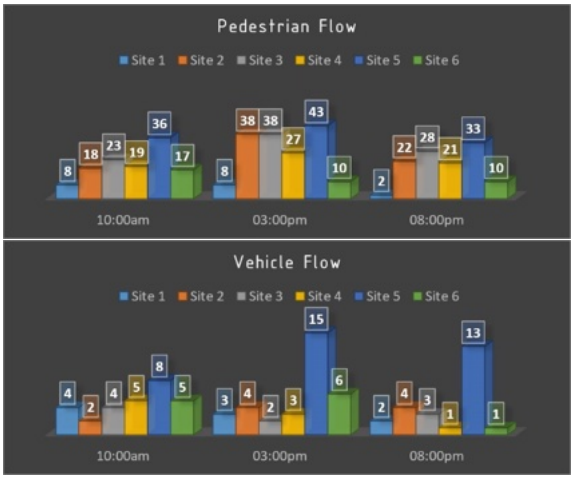

Figure 4. Pedestrian and vehicle flow according to the observation times on each site

Evaluation of the Analysis

Table 4 shows the values of each variable for each site. We highlighted the highest and the second-highest values. According to them, three variables have the highest values in Site 2 and Site 4. There are also some highest and second-highest values in Site 5, including the number of flows. These variables are directly proportional, and the corner sites, Sites 2 and 5, have the highest values. The high values of Site 4 are because the site has connections from both sides, like corners. When we evaluate the sites, we consider Sites 2, 4, and 5 similar to having two connected sides with the environment. So that condition positively affects the number of flows and the syntactical values.

	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6
Number of flow	27	88	**98**	76	**148**	49
Connectivity	2.00	**3.00**	2.00	**3.00**	**2.50**	2.00
Integration	1.06	**1.79**	1.11	**1.70**	1.50	1.06
Choice	2.00	**4.00**	2.00	**4.00**	**3.00**	2.00
Visibility	295	710	680	**1570**	**1130**	150

Table 4. Variable values for each site

4. RESULTS

To investigate the relations between the syntactical features and the flow, we compared the values by correlations. Table 5 shows the correlation values of each variable with each other. According to the correlation between the syntactical variables, connectivity, integration, and choice are highly positively correlated. Visibility is also positively correlated with them but not high as they are with each other. When we look at the correlation between syntactical variables and the flow, we can see that flow is positively correlated with all of them but mainly with visibility. After visibility, integration has the second highest correlation with the flow.

	Flow	Connectivity	Integration	Choice	Visibility
Flow	1				
Connectivity	0,34	1			
Integration	0,46	0,99	1		
Choice	0,34	1	0,99	1	
Visibility	0,58	0,74	0,73	0,74	1

Table 5. Correlation values for each variable

5. CONCLUSION

In this research, we focused on the abandoned open spaces in the selected urban area in Antalya. We aimed to contribute to the literature by suggesting alternative design approaches to activate abandoned open spaces through pedestrian flow. Thus, we investigated the relations between syntactical features of abandoned open spaces and the pedestrian flow around them. We made syntactical analyses and systematical observations on each selected site. Then, we compared the values of syntactical features and the pedestrian and vehicle flow by correlations and tried to discover a pattern between them.

The hypothesis was that improving pedestrian flow around abandoned open spaces can activate them, and to improve the flow; these spaces should be more visible and integrated with the urban texture. So the result values support the hypothesis. According to that values, we can see the importance of flow to activate the abandoned open spaces. Connectivity, integration, choice, and visibility are effective in organizing the flow around these spaces. According to correlation results, making abandoned open spaces more integrated with the urban texture around them and visible increases the flow and activates them. So we can suggest design approaches to increase the integration and visibility of these areas;

Designing new connections in the network can increase the integration of the sites and the flow. So we can create some paths in the abandoned open spaces that connect us with the existing roads.

The visibility of abandoned open spaces has an essential effect on the flow. So we can maintain these spaces open in the vistas to be seen coming from the main streets.

With increasing integration and visibility, we can convert abandoned open spaces into usable open areas that offer pedestrians a convenient place to gather and socialize. Thus they attract more pedestrians and become beneficial for the urban area.

For future research, conducting it in multiple and different textured parts of the city that contain different types of abandoned open spaces will be beneficial to discover a more consistent design approach to help us to understand the relations between abandoned open spaces and pedestrian flow.

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NON-STANDARD REPRESENTATIONS IN ARCHITECTURE: AN ASSESSMENT OF SELECTED DRAWINGS ON CONTEMPORARY PRACTICE

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ABSTRACT

Recently, representation techniques in architecture have changed and varied. Traditional representation methods such as plan, section, elevation, orthographic projection, and central perspective for illustrating ideas in the process of design in architecture have transformed contemporary drawing practice. Designers have challenged these representation tools because of developing technology, intellectual medium, and interdisciplinary architectural discourse. Today, representations created by changing and transforming conventional graphic presentation styles and using them in different ways are popular. This study, it is aimed to present the new possibilities that these representations may offer architecture by investigating the representations that are called non-standard that differ from the conventional drawing methods. The main focus of the study is to question how architecture may be described through drawings of unbuilt architecture by initiating a discussion on the topic of representation on a theoretical axis, which is construction-oriented architecture through non-standard representations. Considering the term "perspective" on spatiality, the relationship between two and three dimensions will be analyzed using non-standard representations. In the research, non-standard representations have been investigated on the drawings of three designers Perry Kulper, Bryan Cantley and Bea Martin, using the strategies determined as superimposition and flatting, and a glossary has been constitued to characterize these representations to initiate a critique concerning classical methodologies. As a result, the explorer aspect of the non-standard representations have been revealed, and it has been seen that architecture has become a more abstract, unclear, and heterogeneous identity, apart from traditional methods, with mediators in the framework for unbuilt architecture.

KEYWORDS: non-standard representations, explorer drawings, perspective, unbuilt architecture.

INTRODUCTION

Recently, representation techniques in architecture have changed and varied. Creators have challenged these representation tools because of developing technology, intellectual medium, and interdisciplinary architectural discourse. Representations created by changing and transforming conventional graphic presentation styles and using them in different ways are popular. Within this scope, it is seen as required to reconsider the relationship between image, representation, and construction. Altürk (2008) emphasizes that the relationship between a building and its representations has gotten somewhat odd in recent years. The circulation of the images (photographs, drawings) through periodicals, books and over the internet has come to be the major way by which the information on buildings is disseminated - especially for those prominent buildings which shape the discourse. Most of the time, it is through the images of such a building that one gets acquainted with it rather than through actual physical experience.

Architectural representations have a double function. They are used for building or as a tool for thinking practice and emancipating it except for construction. As Evans (1997) indicated, the distance, the translation between drawing and building, is not neutral but may generate novel design ideas. For this reason, the study discusses the tension between image and building. The hypothesis of the paper is moved by the premise that architecture is not only about building but also concerning theoretical and subjective thinking activity, emphasizing that drawing may serve as a method of exploring and emancipating practice numerous alternatives for unbuilt architecture. On the other hand, this study shows that the representation is the unique way that allows designers to communicate with other participants since it is a medium that transmits design ideas from the imagination to paper or other materialized elements. In the light of these facts this study will explain the questions "How the new methodologies can help improve architectural thought?", "How can we provide spatial perception on the surface aside from classical perspective methods and this tendency may have new alternatives for extending architectural knowledge?" These inquiries prompt architecture to consider issues beyond the construction. The unbuilt architecture has emerged during the design process through the act of representing within the framework non-standard techniques from idea to construction since alternatives have been created aside from construction and spatial requirements.

In this paper modes of representation have been evaluated on drawings. Drawing architecture entails materializing an architecture within the representation, where it may be searched, discovered, and experienced. This refers to an activity in the current progressive, an action by the author in the process of putting into the world through drawing - architectural inquiry through drawing (Murray, 2022). Drawing architecture is about revealing the potential of an idea that is consistent with how we engage with new spaces. Throughout the history of drawing architecture, from the ancients to the middle ages, 'shifts in the use of drawing presaged subsequent changes in the away architecture was produced' (Murray 2022; Robbins 1997, 10).

According to Suarez (2016), the importance of representation comes from its ability to transfer experiences prior to the construction of a structure. On the other hand, Murray (2022) states that the consistent issue with architectural drawings, as Robin Evans (1986) has argued when dealing with architectural representation, is that drawing in architecture is not done after nature but prior to construction; it is not

so much produced by reflection on the reality outside the drawing, as productive of a reality that will end up outside the drawing'.

Architects do not make buildings; they make drawings of buildings. Other things are similarly conceived - engineering and legislation, for instance- but they are not usually thought of as art (Evans, 1989). According to Gomez (2007), plans, elevations, and sections are eventually expected to accurately forecast an intended meaning as it may appear for an embodied concern in built work. Indeed, no options for the formation of meaningful form are seriously addressed outside the sphere of current epistemological perspectivism - that is, the conception of the endeavor as a "picture."

ANALYSIS OF THE SELECTED DRAWINGS

The drawings analyzed in the study are called non-standard representations for offering alternative drawing methodology in architecture different from conventional representation techniques. In the research, non-standard representations have been investigated on the drawings of three designers using the strategies determined as "superimposition", and "flatting", and a glossary has been constituted to characterize these representations to initiate a critique concerning classical methodologies. Non-standard-representations created by different practitioners consist of five stages which are "explanation" (why these representations non-standard?), "method" (how these representations non-standard?), "images", "main text" (evaluations, explanations, and descriptions of the drawings), the glossary (for compare all this and emerge for the non-standard aspect of the drawings) (Figure 1. and Figure. 2.). The term "Superimposition" is to place or layover or above something (Merriam webster dictionary). In this study, this term will be used to describe superimposed lines and figures of the composition. The term "flatting" refers to drawings that are created by flattening the illusion of three dimensions on a two-dimensional plane without using perspective.

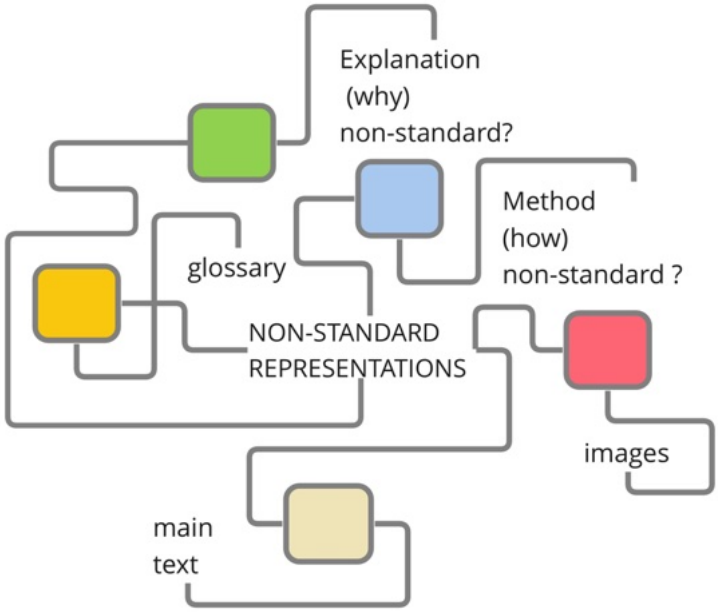

Figure. 1. A map of the colors symbolizing stages of the text. (Designed by author)

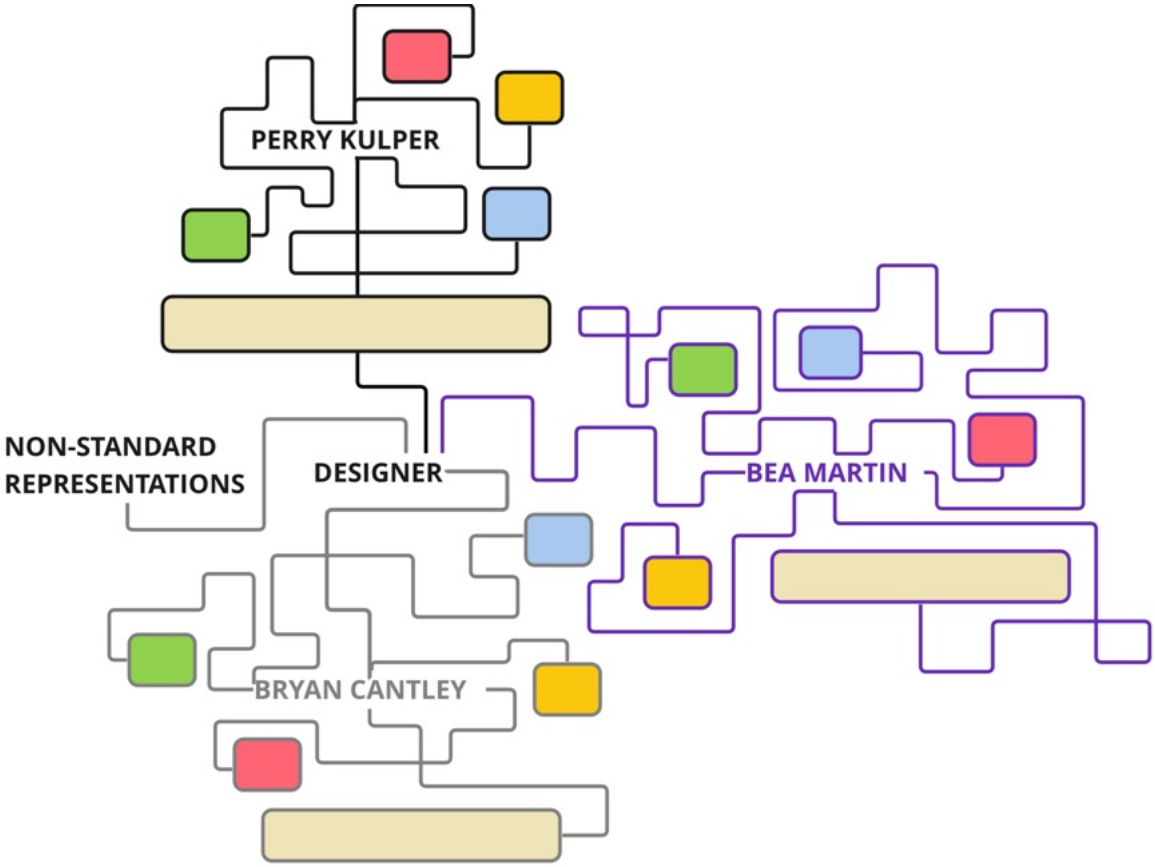

Figure. 2. A map of organization for the study. (Designed by author)

Bea Martin

Main text:

“My interest is in how architectural space registers in such field, or psyche. This includes a graphic **exploration** of cognitive processes and their visual representation, a structural mapping of mental space through frames and folds of memory, as well as the tectonic field in which the psychoanalytic encounter between narrator and narrative takes place on a drawing.” (Martin, 2020)

“A drawing should be conceived as a machinic **assemblage** — a drawing that is **multiple**. Its function or meaning no longer depending on an interior truth or identity, but on the assemblages, it forms with other drawings.” (Martin, 2020)

“Narratives are bound to topography since they can be **redraw**n on maps, exposing the interactions of text and space.” (Martin, 2020)

“…..I am not interested in how drawing represents, but in what drawing does. A sort of **performative** approach to representation.” (Martin, 2020)

“The use of the word **‘ambiguity’** here is not a literary attempt; the aim is to explore the traces, to manipulate the lines, to prod the unconscious and uncover unspoiled territories of the mind and perhaps attempt at some measure of solidity.” (Martin, 2020)

The words Bea Martin used to describe her drawings may help for illustrating her drawings as well. The terms she uses help to define the character of the drawings. First, she claims that the drawings are "...a graphic exploration...". These drawings are explanatory. At the same time, she believes that the drawing is a ‘..graphic assemblage...’ and it has a ‘...multiple...’ character. Additionally, they are ideal for redrawing and they prove that topic of the representation may be concern with "performative approach." Because these pictures are meant to nudge the subconscious, they may be explained using the term "ambiguity." (Fig 3).

Figure. 3. Drawings of Bea Martin.

Glossary:

Exploration:	an examination of something in order to find out about it (Oxford dictionary).
Assemblage:	a collection of persons or things (Merriam Webster dictionary).
Multiple:	having numerous aspects or functions. (Merriam Webster dictionary).
Performative:	being or relating to an expression that serves to effect a transaction or that constitutes the performance of the specified act by virtue of its utterance. (Merriam Webster dictionary).
Ambiguity:	: a word or expression that can be understood in two or more possible ways : an ambiguous word or expression. (Merriam Webster dictionary).
Redraw:	to draw (something) again. (Merriam Webster dictionary).

Table 1. A glossary for Bea Martin's drawings.

Method: superimposition, flatting.

Martin's drawings are highly complicated. It is possible to say that she can provide spatial perception with a technique of flattening during the design process. On the other hand, superimposition of the lines in the composition has considered a non-standard method. Additionally, the drawings dealt with the space of the surface. Methodologically, it can be said that, appearances such as front-rear and side-upper are given - consciously - by superimposing and intertwining each other.

Explanation:

There are section-like architectural elements in the composition, which are shown with continuous lines, but these elements are in the background. The Cartesian system is ignored in these drawings. These drawings are not intended for construction, but rather to detect the traces of the image that we call partir, where the representation first emerges from the mind. These drawings are similar to those of Bryan Cantley and Perry

Kulper. The drawing consists of complex geometries and abstract figures. This drawing is experimental and in the work, the drawing itself is considered the subject of research, while construction is ignored and the act of drawing is considered. In these representations, the Cartesian coordinate system is distorted and differentiated. The designer is concerned with the place in which the representation takes place since it is part of the hypothesis. As the terms in the glossary are analyzed, it is clear that the representation has a multiple and exploratory aspect. On the other hand, reconfiguration of the Cartesian coordinate system shows a non-standard manner.

Perry Kulper

Main text:

"In his work, he **warps** conventions of architectural representation to promote a multitude of parallel and intersecting worlds that are equally possible and impossible." (Young, 2022, 50-51)

"Yet, in Kulper's drawings, the implausible dimensions of the architectural project are **exposed** and **explored**. His work addresses the **unlikelihood** that architecture, in its conventional and expected guises, will cohere and offer a complete experience." (Young, 2022, 50-51)

"Kulper gets us closer to something that transcends the routine promise of normative depictions of architecture. His drawings are more **unlikely**, more implosive, more impulsive, and less anaemic than the routine architecture of expectation and plausibility." (Young, 2022, 50-51)

"In much of his work, the constructional logic of the drawing serves as an **experiential** scaffolding for its surface." (Young, 2022, 50-51)

"…. Simultaneously perspectival and **flat**, space here reroutes visual expectation. The modelled sky pressurises the horizon….." (Young, 2022, 50-51)

"Strategic plots (such as that for David's Island) represent conceptual frameworks, territories, actions and relations that are delineated, or plotted over and through time. These choreographed marks comprise notations, indexes and **proto-spatial** marks, enabling the consideration of durational, ephemeral and stable conditions for spatial **speculations.**" (Kulper, 2013)

"While there are many appropriate roles for drawing, especially conventional graphic formats such as the plan, section and perspective, and their descriptive relevance, my approach to modes of visualisation affords **alternative** options: different capacities for design practice." (Kulper, 2013) (Fig 4)

Figure. 4. Drawings of Perry Kulper

Glossary:

Exploration:	an examination of something in order to find out about it. (Oxford dictionary)
Proto-(spatial):	first formed : primary. (Merriam webster)
Alternative:	different from the usual or conventional: such as (Merriam webster)
Speculative:	: 1. theoretical rather than demonstrable (Merriam webster). 2. based on guessing or on opinions that have been formed without knowing all the facts. (Oxford dictionary).
Flat:	having a continuous horizontal surface (Merriam webster).
(To) Warp:	to turn or twist out of or as if out of shape (Merriam webster).
Exposed:	open to view (Merriam webster).
Explore:	to investigate, study, or analyze (Merriam webster).
Unlikely:	the fact of not being likely to happen or be true. (Oxford dictionary)
Unlikelihood:	not the person, thing, or place that you would normally think of or expect. (Oxford dictionary)
Experiential:	relating to, derived from, or providing experience (Merriam webster).

Table 2. A glossary for Perry Kulper's drawings.

Method:

Superimposition and Flatting.

Considering the drawings and explanations together, we can say that the representation's of the Kulper are experimental. The term "proto-spatial" used to describe the drawings of Kulper indicates that construction and spatial design are ignored. the phrase '...alternative options...' implies that there is a tendency to recognize that

different approaches can be attempted. Representations created by 'multiplying' the lines has been created by transforming the classical approach. On the other hand, distortion of the Cartesian coordinate system indicates a non-standard manner.

Explanation:

The drawings of Perry Kulper anayzed in the study titled "thematic drawings", "stategic plots" and "aspectival drawings". The first, thematic drawings has a composition that combined plan, section and elevation of the architectural element in one surface. According to Kulper (2013), aspectival drawings (like the one for the California History Museum) construct figurative qualities or elements of architecture without respect for the synthetic resolution of perspective drawing.

The nature of Kulper's drawings is configuration of the plan, section and elevation of the objects. Cartesian system structuring and central perspective rules have been ignored. A different composition has been produced by decomposing and altering and transforming architectural elements and representational figures. The drawing is complicated and multilayered. Various architectural lines and a series of words are also included simultaneously in the composition.

Bryan Cantley

Main text:

"What is particularly interesting about the drawings is the manner in which Cantley has moved away from the more traditional focus on describing an object, even if it is flayed out for our inspection, to an **exploration** of certain relations and compositions that interest him separately from what the object of inquiry might be." (Betsky 2022)

"Over time, the work has **flatten**ed out, while also becoming more **abstract**. The language about the images has changed in a smilar manner." (Betsky 2022)

"Cantley's work explores the **enigmatic** blurred boundary between abstraction, notation, presence and absence. The choreography of these nuances all conducted in a machinic form." (Betsky 2022).

"Practised or pursued by architects and allied artists throughout the world, the branch of such **experimental** architecture of which Cantley is part has recently found a small mode of coalescence around a group of 'paper architects' from several generations, from Michael Webb to Perry Kulper, whose work resonates clearly with what this maker is producing." (Betsky 2022). (Fig. 5)

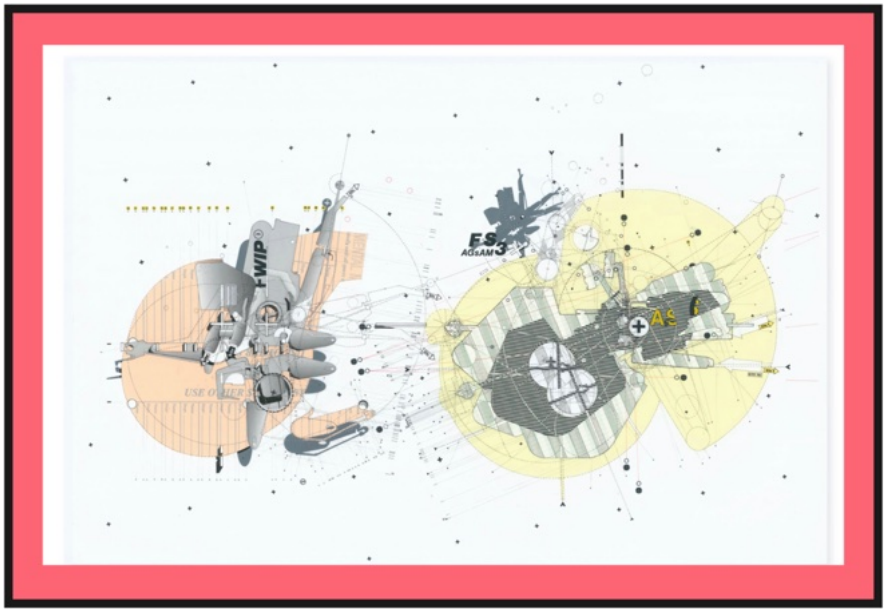

Fig. 5. Drawings of Bryan Cantley.

Glossary:

Enigmatic:	being beyond one's powers to know, understand, or explain. (Merriam webster)
Experimental:	based on new ideas, forms or methods that are used to find out what effect they have. (Oxford dictionary)
Articulation:	having sections connected by joints that allow each section to bend or turn independently in different directions. (Merriam webster)
Flatten:	to extend in or into a flat position or form. (Merriam webster)
Abstract:	: expressing a quality apart from an object.(Merriam webster)

Table 3. A glossary for Bryan Cantley's drawings.

Method:

Superimposition and Flatting.

Explanation:

The perspective drawing and top and bottom elevations have been overlapped. These representations are non-standard, as classical orthographic presentation styles are ignored. By the way, neglecting the Cartesian coordinate system indicates non-standard characteristics. In the light of these explanations, it can be seen that different terms can be used describing non-standard representations (Figure. 6).

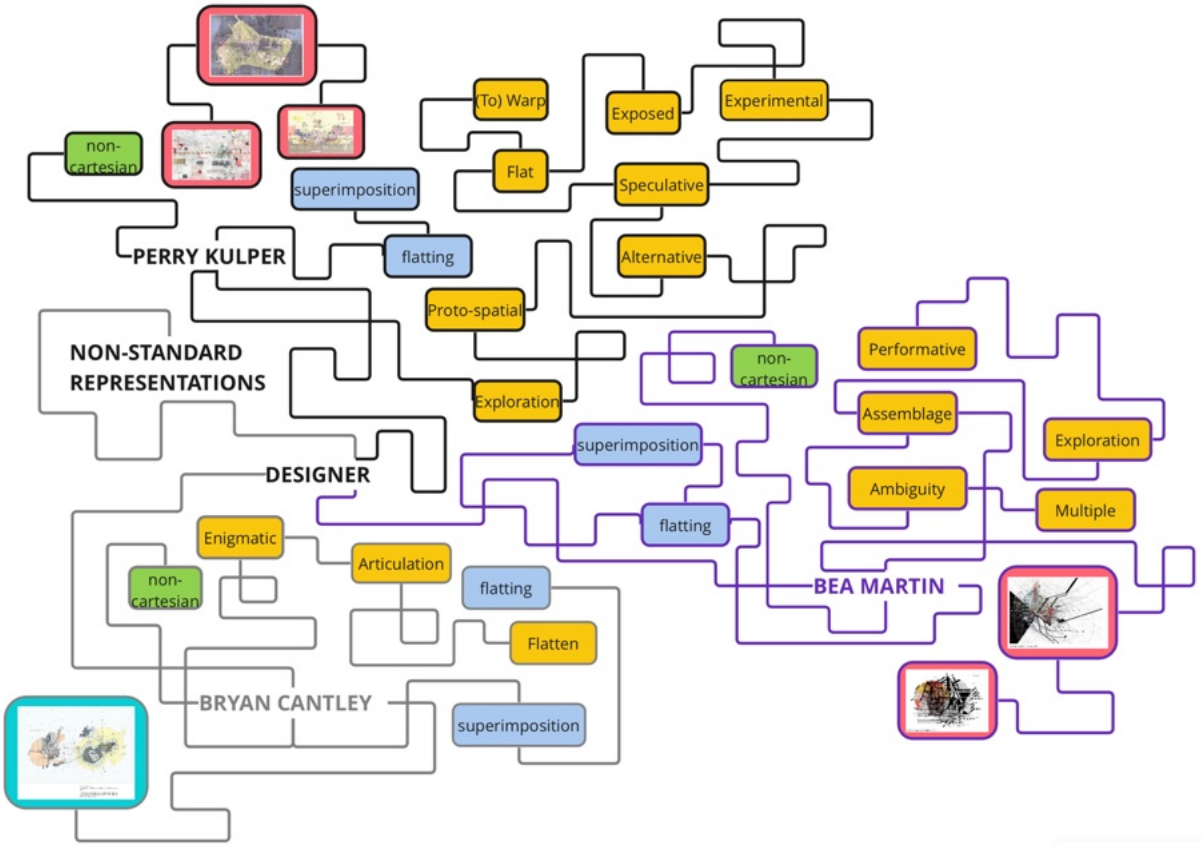

Figure. 6. A map of the detailed organization of the study. (Designed by author)

CONCLUSION

In this paper, the primary concern of the representations are unbuilt architecture because the drawings are not a drawing of an object, they are drawings of drawing. It is indicated the representation is an experimental instrument used as a tool for investigation and research and questioning. The representations analyzed in the study, independent from construction and building design, it is a gate for architecture from other disciplines.

The background of the drawings which are motivated by fictional ordering is based on theoretical and philosophical reasoning. The representation is considered independent from the represented object. Architecture is theoretically considered through the topic of representation thanks to these drawings. These drawings are crucial in that demonstrate to architecture may be suitable for extending other disciplines. It can be said that Renessaince perspective is ignored because spatiality for building design is not a primary concern.

However, these drawings are not exactly two-dimensional, the volumetric effect is achieved by the strategies determined as superimposition and flatting. The words in the glossary have been depicted within framework of representation. By this way, it is possible to say that the act of drawing may be actualised an abstract and imaginary universe, and this can be considered as an approach counter-argument to traditional modes of reasoning. This version of the drawings, on the other hand, shows that representation is a dynamic phenomenon instead of being stable.

The study shows that non-standard representations have been used for a thinking activity. As a result, the explorer aspect of the non-standard representations has been revealed, and it has been seen that architecture has become a more abstract, unclear, and heterogeneous identity, apart from traditional methods, with mediators in the framework for unbuilt/unbuildable architecture.

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IMAGE REFERENCES

Figure. 1. Personal archive.

Figure. 2. Personal archive.

Figure. 3. (Martin, 2020).

Figure. 4. (Kulper, 2013).

Figure. 5. (Betsky 2022).

Figure. 6. Personal archive.

REFLECTION OF THE 4TH ISTANBUL DESIGN BIENNIAL ON DESIGN EDUCATION IN THE PROVINCE

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ABSTRACT

To give design education in a provinces university which almost all its students come from provinces areas… While design education has many needs and arguments in its own right, being in provinces is another layer that should be considered especially. It is the layer that needs to be taken into account differently from the design education of the best universities in metropolises.

There are too many deficiencies at all scale from opportunities offered by the provinces to physical conditions of design studios. Furthermore, in this environment, creative thinking of students is blocked by all communication ways. Transferring the contemporary design approaches and making up the differences from the best universities' education is only possible with the individual efforts of instructors. Since making up the differences is very difficult and slow, it is a process that requires serious motivation and time. In this context, The 4th Istanbul Design Biennial (2018) was included in the course "Design Workshop" at Cankiri Karatekin University Department of Landscape Architecture, hoping to decrease the time of this process as much as possible and to make more progress in a short time.

Although it was considered that attending the biennial would be beneficial for the students, the instructor, and design education; on the other hand, this idea had caused various concerns in the instructor. The reason for these concerns is the general characteristics of the students. For example, the students had heard the word of biennial for the first time. Further, the students had never participated in such an activity. Most of them either had never seen Istanbul before or had been just for one day. Both senses of wonder and the reading habits of the students are also poor. More importantly, they had not yet had to opportunity to develop a common language with the instructor, who had just come from one of the best universities. Therefore, whether the students would be able to visit the Biennial with interest, know how to way, and their ability to understand the designs in the biennial was an equation with multiple unknowns for the instructor. The instructor had no idea how to lead such a group, how to secure/protect their interest. In the light of these concerns, the executive needed to develop various methods in the process, in addition to the preliminary preparations of the trip, such as transportation and accommodation.

This study presents the methods and the reflections of these methods, which were discussed in three processes: the preliminary preparations before the Design Biennial, the approach of the executive during the biennial, and the productions after the biennial. As a result of this study carried out with ethnomethology, it was determined that the reflections of the biennial on design education took place under five main headings: motivation-self-confidence, perception of ideas in design, urban and architectural experience, formation of a common language with the instructor, and cultural contribution.

KEYWORDS: Design Education, Biennial, Istanbul Design Biennial, Landscape Architecture Education, Reflections of the Biennial on Design Education

INTRODUCTION

Design education in a provincial university, where almost all the students come from the provinces or towns... While design education has many needs and arguments of its own, being in the provinces is another layer that needs to be taken into account. It is the layer that needs to be considered differently from the design education of the top universities in the metropolises.

In an atmosphere where there are too many shortcomings in many aspects, from the opportunities offered or (can) not offered cultural by the province to the physical conditions of the studios, creative thinking ways cannot improve. The transfer of contemporary design approaches to the provinces and the reduction of distance with education in the top universities are only possible through the individual efforts of the instructors. Reducing distance in the provinces is a process that requires serious motivation and time, as it is very difficult and slow, like banging one's head against a brick wall. In this context, the 4th Istanbul Design Biennial (2018) was included in the content of the Design Workshop course at Çankırı Karatekin University's Landscape Architecture Department in order to reduce this process as much as possible and go further in a short time.

Organized by the Istanbul Foundation for Culture and Arts (IKSV), the 4th Istanbul Design Biennial was held between 22 September and 4 November 2018. Its main theme was *A School of Schools* within the framework of *A biennial about design as learning, and learning as design*. There were six schools: *Unmaking School*, *Currents School*, *Earth School*, *Scales School*, *Time School* and *Digestion School*. The projects of more than 100 participants from six continents took place at Akbank Art, Yapı Kredi Culture and Arts, Pera Museum, Salt Galata, Arter and Studio-X Istanbul in the Beyoğlu district.

Although the instructor felt that participation in the Biennial would be beneficial for both the students and herself, the idea also raised a number of concerns for the instructor. This was due to some general characteristics of students in an environment where the word biennial was heard for the first time. The students had never participated in such an event before. Most of them had either never seen Istanbul or had only been there for a day trip. Their sense of wonder and reading habits were also weak. More importantly, they hadn't had the opportunity to develop a common language with the instructor, who had just come from a top university in metropolitan Istanbul. So for the instructor, three concerns about the students became an equation with several variables:

Would they be interested in visiting the Biennial?

Would they know how to behave during the visit?

To what extent would they be able to understand the designs in the Biennial?

The instructor had no idea how to lead such a group, how to get and keep their attention. From this point of view, the instructor had to develop various methods in the process, in addition to the preparations for the trip, such as transport and accommodation. These developed methods are explained in the following section.

INSTEAD OF METHODOLOGY: PROCESS

Participants

The aim of the Design Workshop is to develop the skills of students who have just left school and who have not yet taken any design courses. These skills are thinking abstractly and concretely, imagining, producing ideas and expressing the ideas produced with different techniques.

The Design Workshop, which first opened in the autumn term of the 2018-2019 academic year, was selected by eight students, four of whom were freshmen and four of whom were seniors. Seven of these students and two other students from the department participated in the trip. The trip took place on 27 October 2018.

A number of methods were developed to increase the impact of the Biennial on the students, to reduce the risks for the instructor, and to prevent unforeseen negative consequences. These methods, which were implemented in three stages, were: preparation for the Biennial, the instructor's approach during the Biennial visit, and work after the Biennial trip.

At each stage, the students' discourse and behavior were analyzed using the ethnomethodological method.

Preparing for the Biennial Trip

In view of the fact that the students had little or no experience of art activities such as biennials, the instructor automatically had to have a certain amount of empathy and concern. One of the factors that increased this empathy and concern was the various questions asked by the students. For example, What does the Biennial mean? What will we do when we go to the Biennial? Will we have free time after visiting the Biennial? Will we see the Galata Tower? Can those who want to go to Nevizade Street after the Biennial? Although the students were generally interested in the Biennial and the trip, the focus of their questions shifted to free time, as they had no idea what to do in the Biennial. For this reason, the instructor had developed some methods to keep the focus on the Biennial until the day of the trip, such as planning the trip together, corresponding with the IKSV, reading the texts of the works.

Trip design workshop

Since the 4th Istanbul Design Biennial was held in six different venues in the Beyoğlu district, it would be necessary to change venues every few hours during the trip. These circumstances also increased the possibility of undesirable situations such as falling behind the group and getting lost. Especially considering the density of Istiklal Street on weekends... These possibilities meant that there would be risks that could reduce the individual and/or collective focus on the Biennial. For this reason, one of the instructor's main objectives was for the students to know where they were going and in what order. This would ensure that the students were mentally prepared for any conditions that might arise. In this context, the trip design workshop was held in the course on 18 October 2018. In addition to the six venues where the Biennial will be held, some landmarks such as Taksim Square, the Galata Tower, St. Anthony of Padua were marked on

a map drawn on the board. The order in which the Biennial venues would be visited was planned. This plan was photographed and sent to the students' mobile phones via social media.

Correspondence with the IKSV team

The itinerary was made according to the locations of the venues. In addition, there could be other factors that the instructor overlooked, that should have been taken into account, or that would make the Biennial trip more efficient. From this point of view, the instructor sent an email to the IKSV team on 20 October 2018. Two different coordinators replied to the email. Based on the correspondence that developed from these replies, some minor adjustments were made to the schedule. These correspondences were mentioned to the students at every stage, with the aim of keeping their focus on the Biennial and increasing their motivation in this direction.

Reading the texts of the works

Students were asked to download the Biennial's audio guide application onto their smartphones and to bring headphones for the trip. In this way, they would be able to get immediate help if there was a work they did not understand during the Biennial tour and they could not see the instructor in the crowded venues. However, this method had some risks, as it depended on the initiative of the students, the limits of the internet packages of their phones and the charging of the phones. Even if all the risks were ignored, the chance of understanding the Biennial would only be during the trip. These concerns led to the development of a second method. The texts of the audio guide application on the website of the Biennial were put together in written form and sent to the students by post.

The students were asked to print out these twenty-four pages of texts, to read them before going to the Biennial, and to note down the works that interested them. In the following days, the instructor's observations and conversations with the students revealed that none of the students had yet read these texts. It was clear that the readings would either be left until the last day or not done at all. Thus the third method was developed. It was ensured that the texts were read together in class a few days before the trip. During the reading, they were asked to note down the works that caught their attention and the places where these works were exhibited. In this way, the students were encouraged to read the texts and a chat environment was created among them through these texts.

The readings were held around a table in a café to create a friendly atmosphere before the trip. Doing the readings a few days before the trip helped to keep the Biennial works alive in the memory and to focus on the Biennial.

In summary, the methods of preparing for the Biennial were developed with the aim of increasing the students' interest in the Biennial and keeping it alive until the trip, ensuring that they get the most out of the Biennial during the trip, preventing possible distractions during the trip, showing that they have the possibility of regaining their attention by knowing in advance what they will do next if they lose interest in a place, and minimizing the possibility of getting lost during the trip.

Approaches During the Biennial Visit

The Biennial tour began at the Pera Museum. The main reason for choosing this place as the first venue is to allow the students to start the journey with an architecturally effective structure. This would increase the chances of attracting their attention. The first work to be seen here was Judith Seng's *Acting Things* (Figure 1). When the students first saw this work, which was physically spread over a large area and quite effective at first glance, they could not immediately understand it. As a result, they became very concerned. Within a few minutes they surrounded the instructor and said that they didn't understand the work. Their main communication was with their eyes rather than with words: What are we doing here? Why did you bring us here?

Figure 1. Acting Things (Seng, 2018)

The instructor had not anticipated such feedback before the trip. She was therefore mentally unprepared. The first feelings of her, who for a moment did not know what to do and was shocked to experience such a situation in the first minutes of the trip, were truthfulness and encouragement. Truthfulness laid a strong foundation for realism and motivation. The instructor's sincere statement that she did not yet understand this work, that she was trying to understand it, that she needed time to understand it, and that there was no rule that it would be understood as soon as she looked at a work. This approach created a sense of similarity in the students. This provided a momentary relief and took the edge off the students' panic. This relief caused the students to disperse spontaneously with a reflex to understand the work. Within a few minutes, they all came back together to share the points they understood, and through this sharing, tried to understand and discuss the work as a whole.

The second main approach during the Biennial was to talk with the students about the work at the beginning of the work. These idea-oriented and brainstorming conversations brought out different perspectives from the students.

The approaches during the Biennial also ensured that the students did not feel the need to use the audio guide.

Works After the Visit

Considering the effects of the Biennial on the students, two workshops were held after the Biennial: Memory Map Workshop and Collage Workshop, in order to spread and develop these effects and to increase their positive reflection on other workshops to be held within the course. In addition to these workshops, a mid-term exam has been designed, where there is no opportunity to speak during the Biennial, and which will allow the Biennial to be viewed from a different perspective.

Memory Map Workshop

Memory Map is included in the class as a workshop for students to learn and apply this technique. With the idea that realizing such a technique through a shared memory would make the workshop more enjoyable and successful, the 4th Istanbul Design Biennial trip was chosen as the theme of the workshop. In this way, it would be possible both to strengthen the students' memories and to understand the traces they left behind. In this context, the workshop was held in the course on 1 November 2018.

The memory map was produced collectively on a single A0 sheet (Figure 2). Works, places and individual/collective events of the day were mapped. Font sizes were determined according to the commonality of the students. For example, earthquake, blooming algae, sand on *Acting Things*, Fugu Fish, Ünzile, etc. They occupied a larger place on the map as they were the works that made the most impression on the students at the Biennial. From the urban place, the Galata Tower, French Gateway, Kamondo Stairs. Paying 25 TL for three cups of coffee also took its place on the map as one of the individual events that took its place on the memory map.

Figure 2. Memory Map Workshop (photo by Özer, 2018)

Collage Workshop

Collage was another technique that was never taught, requested or used in the teaching life of the department, including the project courses. Based on the students' exposure to this technique at the biennial, the collage technique was included as a workshop in the class on 6 November 2018. They were asked to choose the photos from the Biennial to use in the workshop. The students, who had previously shared their

photographs with each other on social media, gathered around a table during the workshop and made their individual productions on A3 paper (Figure 3).

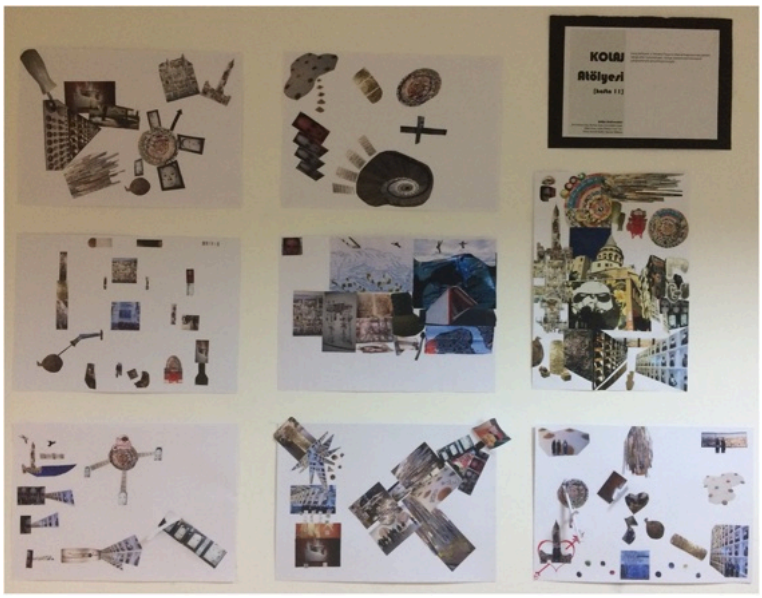

Figure 3. Collage Workshop (photo by Özer, 2018)

MIDTERM

Even though it is a design course, the midterm and final exams of the course were made compulsory due to the operation of the university in 2018. On the other hand, the lecture, whose practice in the top university was not like this, decided to change this necessity to a different format, and to a format that is both educational and entertaining, and that continues the collective production that is the general principle of the course. In this context, the mid-term exam, which took place on 17 November 2018 with the participation of seven students, was designed as a workshop. There are four questions in the exam:

Give ten examples of presentation techniques used to communicate a design idea.

Give ten examples of themes that have inspired the development of creative design ideas.

Looking at the works in the 4th Istanbul Design Biennial through their texts, please explain which designs interest you and why.

Explain the five works you like the most among the works you have seen at the 4th Istanbul Design Biennial.

The students were asked to answer the first two questions by talking and discussing together. The aim was to get them to look again at the Biennial through the windows they had not talked about or looked at before, to focus on the concept of ideas in design, to continue producing together and to make the exam a learning environment. In this context, the instructor left the students alone in the classroom for half an hour and went out. When she returned to the classroom, the discussions continued and the ideas were written on the board. It was observed that the students were progressing with the correct logic, but very slowly as they were still in the first question. At this point she decided to play a role in speeding up the process.

The answers to the third and fourth questions in the midterm were as follows:

The students were interested in a total of 36 different works through the texts of the works. Among these, *Argo* was written by 5 people; *Blooming Algae* by 4 people; *If Algae Mattered* and *Genetically Modified Generation (Designer Babies)* were written by 3 people each. While 36 pieces were appreciated for various reasons, 12 were directly questioned because of the names of the pieces. All the interesting works cover a wide range of topics, from earthquakes to maps, from technology to biology, from geography to miniatures.

The students were interested in a total of 23 different works at the Biennial. Among them, *Deep Digital Twin* is the only work that was liked by all. *Acting Things* was liked by 4 people. *The Fugu School*, *The School of Earthquake Diplomacy*, *Muthesius Parallax*, *If Algae Mattered* and *Blooming Algae* are among the other works liked by 3 people. *Genetically Modified Generation (Designer Babies)*, *No More Sleep, No More*, *Hope on Water* and *Open Sesame* are works liked by 2 people each. All the favorite works focus on technological, conceptual, biological, earthquake and natural elements.

SURPRISE PROCESS: GIFT BOOKS FROM THE TEAM OF THE 4TH ISTANBUL DESIGN BIENNIAL

The instructor sent a thank you email to the IKSV team after the Biennial trip. The scope of this acknowledgement is the success of the Biennial, its important reflections on the students and their help during the preparation of the trip. In addition to the responses to the thank you emails, on 14 November 2018, IKSV sent a surprise package to all the books related to the Istanbul Design Biennials with a nice note. This situation was shared with the students through the WhatsApp group set up for the Biennial trip. All the students were very excited and said that they wanted to study the books at the first opportunity. Such requests from these students, who had never been in the habit of reading, were quite surprising.

REFLECTIONS

At the end of all the processes carried out within the framework of the course, the effects of the 4th Istanbul Design Biennial on the students were in the form of ripples that went out from and through each student centre. Motivation for design was created and self-confidence was built. This centre also made strong waves. These waves provided the students with design ideas, perceptions of place, urban experiences, perceptions of different discourses and artistic travel cultures.

Collaboration of Motivation and Self-Confidence

In all its processes, the 4th Istanbul Design Biennial had the greatest impact on the students in terms of motivation. This motivation created a strong foundation for the students' self-confidence. However, their self-confidence was also the first thing to be shaken during the Biennial visit. This was because they did not immediately understand the first work they encountered, which caused them a great deal of anxiety. Nevertheless, the encouraging approach of having an 'expert' at their side when they encountered issues they had not previously thought about and had no agenda was well received. After a few hours, the students moved on to a stage where they could understand and interpret the works, express whether they liked them or not, and develop suggestions for the works they did not like. These few hours are a short time for

a shaken self-confidence. Therefore, this situation created a different kind of self-confidence in the students. The motivation created by their increased self-confidence was also evident in the workshops held during the course in the following weeks. The motivation of the Biennial for the students was not only in terms of design. It was also a motivation for the students' provincial life, which they described as the "Çankırı drama". In this context, they thanked the instructor and said that they would like to participate in such a biennial again.

The process had been an important source of motivation, not only for the students, but also for the instructor's belief in education and life in the province. The students had the greatest influence on this. The students' interest in the Biennial, their effort to understand the works, their harmony during the trip, their struggle with physical fatigue during the day, the respect they showed to the instructor, their satisfaction with the trip and their expression of satisfaction... The second effect was the Biennial organization team. In the provinces, the feeling of being alone, due to individual efforts, was diminished by the responses to e-mails from the team. With the arrival of the books, it was replaced by good feelings of solidarity. The books made the instructor think that she was not working so hard for nothing, that her efforts were being rewarded, that she was not running in circles, and that they were actually an indication that she was making a significant effort.

Idea Perception in Design

Idea in design is sometimes a difficult subject for students to grasp immediately. Understanding the idea does not mean implementing it immediately. In addition to generating ideas, it takes time for students to learn and practice the techniques for communicating an idea and the variety of materials that can be used for these techniques. At this point, the Biennial has made four important contributions to the students.

The first contribution relates to the concept of idea in design. It was very quick for the students to understand this. Looking at the issues that are not on their agenda with different ways of thinking, thinking and discussing about different ideas, exploring the sources of inspiration for ideas formed the basis for brainstorming. This effective layer supported and strengthened the imagination in generating new ideas by triggering creative thinking. These findings are based on the results of the Cube Workshop held in the following weeks of the course and the idea creation and expression workshop.

The second important effect of the Biennial on the perception of ideas in design is to create awareness. This awareness is the reality that everything can be related to design and every idea can become a design. The instantaneous opinions, thoughts, feelings, etc. of everyday life can be transformed into various designs and thus into works.

The third important impact of the Biennial was on the techniques of expression. The combination of many techniques related to the expression of each idea gave students the opportunity to explore these techniques by wandering among them. As a result, many concepts were learned in just one day. For example, keys, collages, timelines, posters, perspectives, virtual reality with VR glasses, etc.

One of the works in the Biennial, the timeline created with the trunk of a Douglas fir, provided another important break for the students (Figure 4). The students, who had seen, talked about, and done intellectual

exercises with many tasks throughout the day, found the task very easy when they somehow came across a tree stump. They developed ideas on how to make it better. Faced with this situation, an argument put forward by the instructor allowed them to look at the issue of simplicity from a different angle: the discourses of those who turned their ideas into a product are discussed. The main purpose of this discourse is to destroy the perfectionism in the minds of the students, which turns their product creation activities into laziness.

Figure 4. Jesse Howard and Tim Knapen. A stereotypical notebook, Timelines, Tree stump (Kaygusuz, 2018)

Metropolitan and Architectural Experience

Another reflection of the 4th Istanbul Design Biennial is that it allows students to see an important part of the city of Istanbul from a different perspective. For the first time, they experienced this area, which they know and see only in terms of its urban identity values, completely on foot. They understood that life on Istiklal Street is not just walking down a pedestrian street, seeing the Galata Tower and drinking alcohol on Nevizade Street. They saw Istanbul and Taksim from a different perspective, from a different level.

By walking between Taksim Square and Karaköy, a distance of approximately 15 kilometers, they had the opportunity to experience an urban place through various frameworks like art, design and architecture. In this context, they became acquainted with passages (Terkos Passage, Atlas Passage), gateways (French Gateway, Tunnel) and churches (St. Anthony of Padua, etc.) from architectural building types. Walking through historical buildings such as the Pera Museum, the Salt Galata, the Arter, which are among the exhibition areas of the Biennial; it has created the opportunity to see details such as the staircase solutions, window details, floor heights, materials used in these buildings. So much so that in the following weeks, when the students talked about their memories of the trip, they referred to all these places as landmarks with their names.

The Construction of a Common Language with the Instructor

The 4th Istanbul Design Biennial made an important contribution for the students to construct a common language with the instructor, who came from one of the top universities of the metropolis. This situation played an active role in the understanding of the instructor. It became much easier for them to understand

the terminology used by the instructor and the expectations of the instructor within the framework of the workshops held in the following weeks.

In addition to creating linguistic integrity, the trip increased the students' respect, attachment, and trust for the instructor. In this regard, the students' feedback and evaluations were as follows;

The instructor who focused on positive behavior was called "smiling" by the students.

The instructor was called "different" because she was outside the norms of the province. This difference had led to a variety of interpretations that were interesting to the students and in which the students put a lot of reasoning.

The effort of the instructor to understand and explain the works during the Biennial visit, to translate the articles into English, and to listen to the instructor from time to time while the other participants of the Biennial explained the works, made the students envy, appreciate, respect, and admire the instructor.

Not only for the Biennial visit, but also during the process, the instructor's meticulousness, the excellent operation of the two-day Istanbul trip plan, the exposure of the students to many new topics and places during the trip, ensured a different kind of respect for the instructor. When the instructor made a decision or a suggestion, it led to the perception that "she knows something". This perception reduced the unnecessary oppositional behavior of the students, who had to hear the reasons and be convinced in every subject; developed the behavior of being together and making decisions together; enabled them to perform some positive behaviors that they never expected of themselves (for example, waking up very early the next day despite being very tired and getting up easily).

Cultural Contribution

The 4th Istanbul Design Biennial has made a significant contribution to the formation of certain cultures among students. The first of these cultures is the recognition of such an event. This recognition based on experience has created a landmark. Within the framework of the course, they made a constant comparison with the Biennial in preparing the final exhibition and in writing the information texts describing the content of the works. Another culture influenced by the Biennial is that they now know what to do and how to behave when participating in such events. This was most evident in the differences in behavior between students who attended the Biennial and those who did not. The students who did not attend the Biennial did not read the texts of the works and did not try to understand the works in depth. They just looked at them visually and physically touched the works that interested them. Visiting the exhibition was only a few minutes of activity.

INSTEAD OF CONCLUSION: GENERAL EVALUATION

The 4th Istanbul Design Biennial has contributed to design education in the province. These contributions are student-centered and lecture-centered. It enabled the students to develop their knowledge and skills in a short time, to think abstractly and concretely, to dream, to produce ideas and to express the produced ideas with different techniques. It was a source of motivation for the students and the lecture. In a design

education environment where most of them did not know each other and the lecture at the beginning, the Biennial played an important role in creating a community and a collective production environment. The Biennial also created an important platform for the creation of a common language with the instructor and served as a bridge.

There are two main reasons why the Biennial has contributed so much to design education in the province. The first is the success of the Biennial. It has been a source of richness for the students, as it has presented works dealing with different themes and techniques in different historical and cultural places.

Another reason for the Biennial's contribution to the students is the success of the trip. It was the processes and good planning of the trip that determined this success. The processes developed due to the disadvantages of the student profile and the educational opportunities in the province increased the interaction of the Biennial with the Design Workshop (Figure 5).

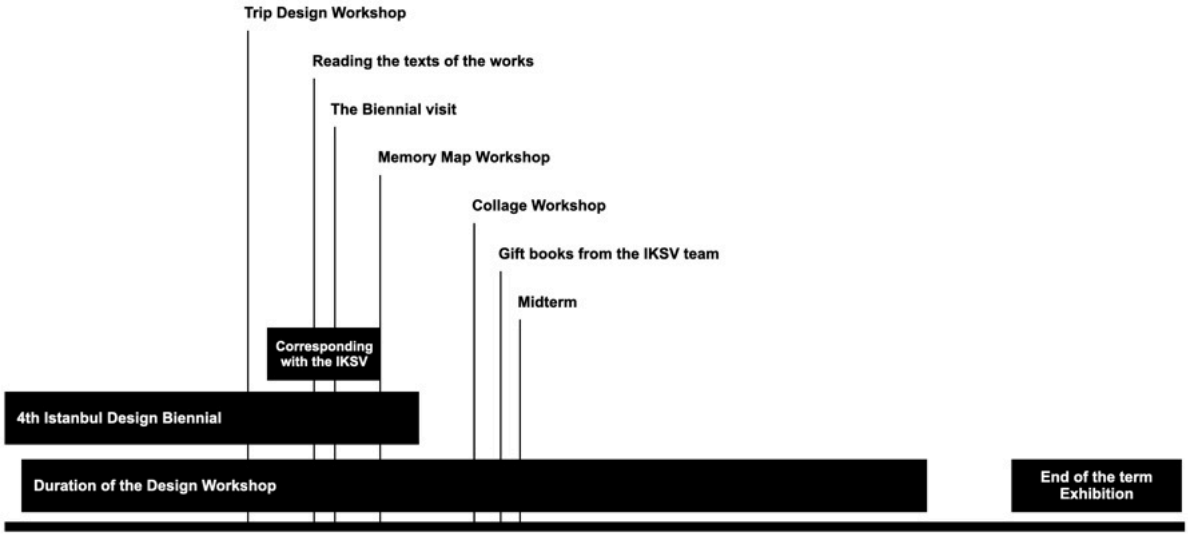

Figure 5. Processes of interaction between the 4th Istanbul Design Biennial and the Design Workshop

A general evaluation of the preparation processes for the Biennial and the activities during the Biennial revealed the following results:

Students' interest in the Biennial increased day by day and remained alive until the Biennial trip.

The students did not need the audio guide application. Therefore, they did not use the application. The approach of reading the texts of the works just before the trip, noting down their favorite works, and the approach of the instructor, whom they see and trust as an "expert," were effective. The students did not wander through the Biennial without an idea, idly and aimlessly. On the contrary, they wanted to examine the jobs on their lists, and so they went after those jobs.

The fact that the students knew from the beginning what they had to do kept them focused throughout the trip. Except for situations such as hunger and fatigue, there were no distractions or loss of interest. Knowing in advance what they would do next if their interest waned during the trip created an opportunity to refocus their attention. In this way, the students benefited from the Biennial at the highest level.

The students' interest in the Biennial, their harmony, their respect, their smiling faces and their fight against fatigue were a good motivation for the instructor to believe in her education and her life in the province.

Their curiosity was high during the Biennial trip and they visited all the works in the Biennial. It had a very educational, thought-provoking and idea-forming reflection on the students. Why did the teacher bring us here when we did not understand anything at first? The eyes in the shape of a man radiated the aura of a factory that, after a few hours, was trying to understand, discuss and produce ideas. This created a process that motivated the students. This self-confidence gave them the way to face problems that they had never done before, never thought about before, never had an agenda, and the motivating approach of a "knowledge" that was with them at that time. So much so that by the end of the day they were wondering if there were other biennials. With many effects in general and in detail... They understood, interpreted and criticized the works. In this way, they got the most out of the Biennial.

What the design idea is, the elements that inspire the formation of an idea, the presentation techniques used to convey the idea, the material preferences according to the idea and the presentation technique, etc. Various examples of these processes were seen together at the Biennial. And they experienced that everything can be related to design.

There were no possible risks during the trip. For example, there were no undesirable situations such as falling behind or getting lost in the group during the trip. The students mentally perceived the Beyoğlu district in relation to the Biennial venues. They talked to each other by saying the names of the places they visited. In addition, imaginary places were memorized.

In the post-Biennial processes, the use of techniques such as collage, the creation of a work-specific legend, the editing/creation of the end-of-term exhibition, etc. The effects and contributions of the Biennial continued to spread in various forms. The knowledge and experience that the Biennial brought to the students was put into practice, developed and disseminated. Students were given the opportunity to think freely about the idea of design, and their motivation to design was increased. In the overall evaluation, the processes had important reflections on the success of the Biennial tour, on the development of other works done during the period, and on their conviction that any idea can be turned into a design at any moment.

The final exhibition was one of the other topics that had an impact on the students' self-confidence and motivation. Thanks to the Biennial, students who experienced a design exhibition and saw the exhibition design were able to organize their own exhibitions. The first most diverse exhibition in the department was opened. During the installation of the exhibition, the students constantly drew analogies to the Biennial. However, the other students of the department, who had never been to an artistic activity, did not try to understand the works in the exhibition of the course. They touched them with their hands, looked at them and passed by. They showed no interest. They did not read the texts written next to the works and did not try to understand the works. This situation was noticed by the students who visited the Biennial and created bitterness in them. There are two signs of this situation. The first is the weakness of the design curiosity of the students who did not attend the course. The second is that the students who attended the Biennial have developed manners regarding a cultural event.

The first year students who participated in the 4th Istanbul Design Biennial graduated in the academic year 2021-2022. In light of the observations, conversations, narratives, studies and academic status of these students in the courses they have taken with the same instructor during their 4-year education; it has been observed that the effects/reflections of the Design Workshop and the Biennial trip conducted within the framework of this course continue for years. For example, in the Landscape Project course, it was observed that the students who participated in this trip were able to achieve more easily and were more creative than the others in the stages of understanding the desired, forming an idea, expressing the idea, and explaining the idea. In addition, they said that it was the most beautiful and different trip in their university life and even in their whole life, and they always remembered the trip as a whole. On the way back from the trip, the students said, "I'm glad we came to the Biennial!" They asked when it was again and said they wanted to go again. An instructor from the department who observed the Design Workshop from a distance also stated that she thought the Biennial had caused a significant impact and transformation on the students. One of the students who did not take the course and only attended the Biennial agreed with this assessment.

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APPROACH TO COMMERCIAL ARCHITECTURE IN ASIA. ANALYSIS OF PROJECTS BY LISBON-BASED PRACTICE 'PROMONTORIO'

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ABSTRACT

Commercial projects in Asia are mostly outsourced to international practices. With the rapid urbanization and expansion of the cities/urban centers in the Middle East, many international practices have opened their offices in Middle-Eastern countries. A five-partner design practice from Portugal that has produced a portfolio internationally and represented contemporary Portuguese architectural/urban planning ideas in major cities of the world. With multiple ongoing proposals and projects in different construction phases, Promontorio has completed projects in Qatar, UAE, and Saudi Arabia, projects have been submitted and are in progress for cities of Kuwait, Oman, Syria, China, Pakistan, Malaysia, Vietnam, Iran, and India. Promontorio initially established an office in Dubai, shortly afterward relocated to Qatar, and now the practice has two offices in the Middle East, the second one in Kuwait. The gradual establishment of an independent oiling industry in the region and the 21st-century construction boom and organizing/establishing various sporting events in lands led to high demands in the construction industry in the region, the office after establishing a base in Qatar has successfully won projects until design submission phase if not completed or won in the neighboring Asian countries. This paper will explore and study the process that the firm follows for international projects, and examine the projects designed and proposed in Asia. The following five projects will be analyzed as a part of this research; Floresta Gardens (Qatar), Rafal Living (KSA), Mashhad Mall (Iran), Venue Jumeirah, Dubai (UAE), and Gulberg Greens (Pakistan).

Key Words: Asian Regions, Commercial Architecture, Middle East, Portuguese Architects, Mixed-Use Projects.

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- This paper is part of a research project 'Exchange of architectural and urban planning ideas between Portugal and the East' conducted with the guidance of Dr. Maria Rita Pais (arq-id.ulusofona.pt).

OBJECTIVES

This paper aims to study the recent mixed-use commercial developments, proposals, and commissions designed by the Portuguese architectural collaboration 'Promontorio'. A brief historic review of the region, the immediate context and background of the regional requirements with the importance of the commanding programs will be discussed.

METHODOLOGY

Short-listed projects have been selected due to their location, program, and scope of work. The five chosen projects are built/proposed in Asian regions. Each project is chosen in a different region to bring forward the diversity of the projects. The analysis will include the following aspects:

(Qualitative analysis with the project description)

. Design concept evaluation.

. Local requirements. Context relationship

. Feasibility, Sustainability, and Influences.

. Design language/character. Concept/ innovation.

INTRODUCTION

Portuguese established their initial contacts in Asia at the end of the 15th century and played an important role in the trade of the Persian Gulf with a presence on important shores and remained active for the next two centuries in the major trade of the region (Rudi & Jorge, 2011). However, their historical architectural heritage is very minute when compared to Goa, Daman, and Diu or broadly speaking their presence on the Indian shores of the subcontinent and Macao. The Persian Gulf is not estranged from historic encounters and also has a modern history of European/American interactions. From the end of the 15th century with the Portuguese arrival, a chapter of European dealings opened, that lasted until the independence of Qatar 'Sep 1971', Bahrain 'Aug 1971' and UAE 'Dec 1971' in the second half of the 20th century from Persian Gulf and from Asia in general with the Annexation of Goa 'Dec 1961', handing over of Hong-Kong 'July 1997' and Macao 'Dec 1999' to PRC by the British and Portuguese correspondingly at the end of 20th century.

Asian regions have a strong presence of modern architecture with important state projects commissioned to European and American Architects in different regions, some of the significant names of pioneering modernists that have a portfolio of built projects and urban plans include Le Corbusier, Louie Kahn, Frank Lloyd Wright, and Richard Neutra. The discovery of oil in the Middle East, a major economic boom that provided preferential for the development of the cities and also became a main factor for the internationalization of the region. Contemporary developments in the region include projects from SOM, Atkins, SL Rasch GmbH, HOK, KPF, Gensler, and Norman Foster + Partners, these firms have built significant projects in the region. While talking specifically about Portuguese architects, Porto-based architect Alvaro Siza with Carlos Castanheiro has received and completed significant commissions of heritage and cultural projects in China, South Korea, Japan, and Taiwan. However, if we talk about the developments in the

Middle East specifically the only architectural collaboration that has ventured into commercial, mixed-use, and high-rise developments, Promontorio is the only Portuguese firm that with its networking skills has penetrated into the Middle East and then expanded its operations into the neighboring Asian regions with their commercial and mixed-use design portfolio.

Office and Design Strategy: A collaboration of five partners, Paulo Perloiro, Paulo Martins Barata, Pedro Appleton, Joao Perloiro, and Joao Luis Ferreira was established in 1990. The practice grew into a team of over 60 professionals, providing services in architecture, planning, landscaping, and interior design. The design philosophy of Promontorio is centralized on the encouragement of mixed-use programs, encouraging the idea of buildings that have a combination of office, commercial, and residential spaces. With the increasing city developments in the hands of private sectors with the decline of the welfare state, the innovative solution, and exploration of programs even in large scale programs and budgets, Promontorio aims to achieve architectural dignity with contextual solutions (Promontorio, n.d). With a portfolio of over 3 million gross GLA built area in commercial projects, the office has received awards from ICSC, MIPIM, MAPIC, AAP, and Real Estate Awards, whereas the office has also been shortlisted by Aga Khan and RIBA juries. Promontorio's strategic approach in commercial and mixed-use architecture is divided into the following 5 phases (PromDesign, n.d).

Phase 1: Investment decision; Fulfilling with the urban parameters; Volumes and urban impact; Commercial layout options; areas, ratios, and efficiency; business plan formatting and Preliminary budget estimate.

Phase 2: Conceptual development, fulfillment of ratios; Development of commercial layout; Follow up of the pre-letting, Presentation of the concept to internal and external decision-makers; Basic quantity survey.

Phase 3: Project licensing; Follow up of the licensing authorities; General coordination of the projects; Assistance to the commercialization of the anchor stores; Rigorous quantity survey.

Phase 4: Full construction documents package; Alternate construction techniques investigation; Coordination with M&E; Follow up with contractors, and negotiations; Fine-tuned quantity survey and specifications.

Phase 5: Site surveying; Systematic adaptation to letting during construction; General coordination of the projects with the tenants; Quantity surveying of alternative solutions; Support to the negotiation of additional construction jobs, Implementation of landscaping, graphic design, and signage.

In the discussed projects only one project in Riyadh, KSA completed all 5 stages of the process.

Promontorio has sub-offices/contacts in Doha, Kuwait, Mozambique, and Germany, and has built a diverse portfolio with the scale and scope of projects that they have received. Their first major commercial success can be considered the Vasco-de-Gama designed by BDP Ltd, and Lisbon Oceanario designed by Cambridge 7, acting as local office and architects of record for these established American and British architects in the forming years of practice certainly added volumes to the formation, that helped them expand their network in Europe and internationally in the following years. These two projects hold importance for Lisbon as they were at the heart of Lisbon expo98 thus the notice was certain. Today, this area acts as an important commercial hub for Lisbon, accessible by the transportation hub 'Oriente central bus/train station'

designed by Santiago Calatrava and surrounded by many significant landmark buildings designed by noteworthy international architects. The firm has designed projects that have cultural significance, nevertheless, having expertise in the commercial sector as a backbone for the office operations, with the major projects for the commercial and private sector and 'for profit' purposes for the private investors, opened doors to the state commissions. The above-mentioned project phases provide the clients/agents with suitable options for the comparison of the schemes. Office along with the necessary fulfillment of the requirements, and analysis of feasibility aspects looks into 'Abstract references in Architecture' to anchor the projects. Analyzing the proposal sheets provided by the company, it is evident that the design team focuses on the local context, immediate and abstract referencing of the regional factors varying from the landscapes, terrain, geography, climate, flora, and fauna. However, it has to be reviewed if it is just the overview or just the basic understanding of these elements. The chosen projects will be analyzed to get a better understanding of how these concepts have been utilized in the actual proposal with the qualitative analyses. For a better understanding, these sheets will be a part of the ongoing research and will be shared at a later stage.

FLORESTA GARDENS – THE PEARL (QATAR) 2017-2018. Status: Unrealized proposal

Qatar is a peninsular region with a land area of 11, 571 m^2, transformed by oil production after the 1950s. From 1872-1914 the country was under the Ottoman Empire, historically and during this phase, the primary economy of this region was dependent on trade, pearl hunting, and fishing. It became a British protectorate after WWII until its independence in 1971. The discovery of oil in the 1940s it became a gem for early British companies in the region. Establishing its services as an oil-producing country, being a major producer and exporter of oil and gas provided the economic resources that gave incentives to rapid urbanization. Today country possesses the third-largest gas reserves and about 25 billion barrels of oil (Sorkhabi, 2010). The dynamic is that the country is smaller in size with a total land area of 11,571 km2, extending approximately 160 km into the Persian Gulf with a width between 55 to 90 km from east to west, however, the wealth of natural resources, well managed and established offshore fields and storage facilities with sizable maritime boundaries and resources make it one of the most organized oil and gas production and exporting nation (Al-Amadi et al, 2022). According to World Bank data only in Qatar, its population increased from 0.18 in 1970 to 2.80 in 2019 million with only 12% being Qatari nationals and the rest expatriate communities (WB, n.d). In 2001 the United Arab Emirates started to build Palm and World Islands, followed by Jabel Ali and Deira with an ever-growing population and expanding visions. This is also rapidly transforming the region's main GDP from its dependency on fossil fuels to tourism and postmodern commercial cities attracting international communities, this encouraged neighboring countries of Qatar, Oman, Bahrain, and Kuwait to utilize their coastlines bringing investment, creating economic hubs, petroleum reserves, and residences foSor the growing population (Afzal et al., 2022). Hence the project of Pearl can be seen as the bigger plan of the Arabian coast of the Persian Gulf.

Image 1: A: Master plan showing the reclaimed area B. Ariel renders by CallisonRTKL (Al-Amadi et al., 2022).

Built on the reclaimed lands on the shores Doha-Qatar, Pearl Island is a manmade development using a landfill in the Persian/Arabian Gulf. Developments towards the North of Qatar city started at the start of 2003 with the boundaries reclamation process for Pearl Island completed its initial phase by the end of 2006. The development of Pearl is undertaken by private developers United Development Company based on a master plan 'Image1' developed by Seattle-based design firm Callison (Muneerudeen et al., 2016). This development adds 32 km of new coastline with 985 acres of reclaimed land that will be able to accommodate over 45 thousand residents with 18 thousand plus dwellings. Divided into different phases, incorporating different architectural styles and characters of landscaping, it provides options for short-term lease, long-term rentals, or ownership options and is used for short-term vacations to permanent residency. Promontorio was commissioned to submit a proposal for the Floresta Gardens phase in the main Pearl master plan.

Image 2: Master Plan proposed by Promontorio.

Image 3: 3D visualizations of the proposed developments.

Image 4: Rendering of built proposal

Image 5: Satellite image of the current state of developments.

Promontorio submitted a proposal for the development of Floresta Gardens 'Images 2 & 3'. While studying the proposal vs the actual built design 'Image 4 & 5', it is evident that the individual private gardens, spaces, and privacy was lacking, however, in a bigger picture with more apartments and communal gardens is a scheme that is more appropriate to the ideas of the socialist European/American urban block typology that started developing in major cities in 18th and 19th century (Ghisleni, 2021). Designed in an abstract way to

fit the outlines of the provided site, conceptually proposed as a sequence between the public realm and private space, harmonizing between street layouts into the surrounding areas, creating connections between new neighborhoods of the master plan. Creation of neighborhood character, different volumetric settings, and, heights to revive a traditional village image Local requirements-economically feasible, doubts on geographic sustainability (Promontorio A, 2022). The proposal represents Mediterranean influence rather than the region's inherent quality or on a broader level European influences of housing from the 18th/19th century. Hence the ideas represent the fusion between designers' subjective understandings and the modern state of the art with the main axis meandering along the surrounding blocks echoed with neighborhood character. However, if we analyze the final renders the abstract references seem to be lost in the translation and only limited to the descriptions. The basic architectural elements of datum, hierarchy, focal point, and balance primary and secondary road networks missing as a defining character but represented only on a surface level. Comparing the proposal 'images 2 & 3' with the built scheme, It is evident that the local requirements or preference was for the individual units with private open spaces, and the proposal provided centrally focused communal gardens with a Eurocentric vision.

Rafal Living (KSA) 2014-2022 Status: Built

Traditionally/Culturally the region of Arabia gets its associations with the pilgrimage and Ibrahim roots, the major economic factor historically with the territories is the crossing of traditional trading routes. There is a rich history and architectural heritage of the various civilizations and empires. With the Muslim expansions after a unified Arabia and consequently Umayyad, Abbasid, Fatimid, Ayyubid, and Ottoman Caliphate the concept and ideas of the region expanded around the globe (HarvardProj, 2020) This also bought the region cultural influences from various parts of the world as the annual pilgrimage was a gathering by the people from all over the world which enriched important cities of Arabia with an international cultural throughout history. Contemporary development and establishment of the Kingdom of Saudi Arabia also trace its roots to the oil discoveries, with the initial. While discussing the 20th century, the major economic developments can be associated with oil/gas and natural reserves. With the major engines converting from coal-fired to fuel combustion by the 2nd half of the 18th century, it was evident that oil will be a necessary part of the trade, industrial developments, shipping, and the core of aviation (James, 1908). With Post WWI the treaty of Lausanne, Asia Minor gave away the claims of the Ottoman time over the Arab lands and the British influence over the lands grew (Demirci, 1997). However, the world came to realize after WWI that oil will be a major factor in modern warfare this contributed to the mapping of the major resource fields that were decisive for the major conclusions of WWII with the region playing an important part in the resources of oiling that was decisive in production, implementation, and warfare in Air/Navel/Land and relevant resources of the regions (Giacomo, 2013). In the post-WWII and Cold War era, decolonization of major Asian/African regions and the carving of new nations on the globe, major industries boomed and oil had to play a decisive factor, this gave the prominent tools to KSA and the development of the region is evident decade by decade. Along with the neighboring middle, KSA possesses the proven world reserves of 67.1 percent out of the 80.4% proven world reserves by the Organization of Petroleum Exporting Countries (OPEC, 2022). With the vision to convert the nation into a state-of-the-art immigration/pilgrimage destination, the two sites of Mecca and Medina were transformed and are

expanded/developed continuously. Having a green vision, the country is aiming to convert its dependency on oil towards transforming world energy requirements into a greener and more sustainable region, hence, the capital and largest city Riyadh with Vision 2030 opened the country's doors for the first time to international tourism in Sep 2019, with the welcome of 67 million visitors in 2022 (SAvision2030, n.d). The ongoing development in megacities can be seen as progenies of this vision.

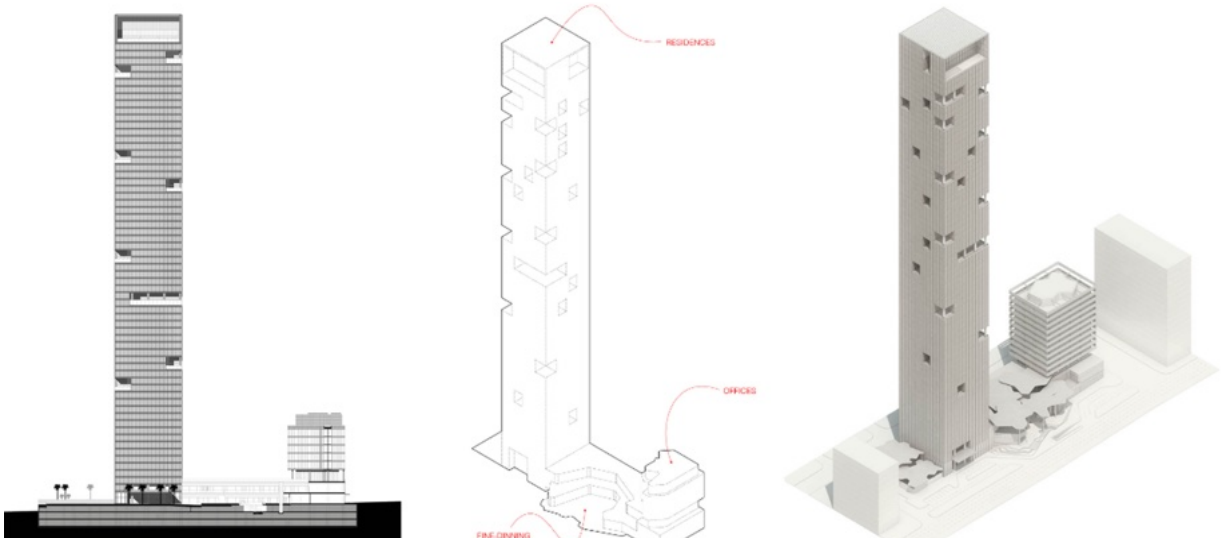

Image 6: A. Cross-section of the project B & C: Axonometric drawings of the proposal

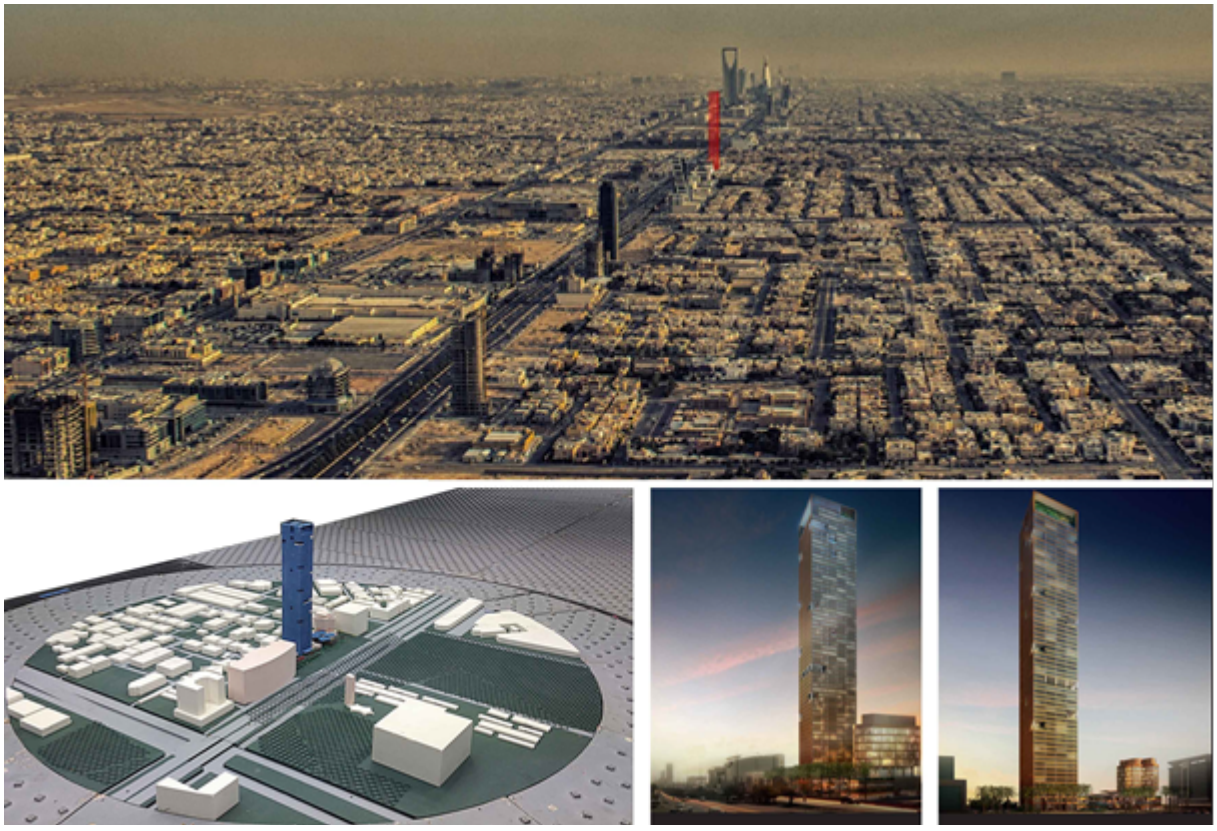

Image 7: A. Location of building in context B. Physical model C&D. Renders of the proposal

Located on the King Fahd Road in Riyadh ‘Image 7A’, developed by Rafal Real Estate (Muhaidib, Aramco, and Abunayyan). The project has a site area of 10,300 sqm with a covered area of 69,100 sqm + 30,300 sqm of parking. The project was commissioned after an invitational competition and has been completed in 2022. The building takes its precedence from Seagram Tower by Mies and Lever House by SOM, with slots subtracted at random intervals, ‘Image 7B&C, Image 8’ having a mixed-use program, the use of sustainable contemporary materials, and finishes with the latest curtain wall technology it represents a skyscraper of the modern era. There is a two-story shaded galleria that opens up to the main axis of Riyadh, with the conceptual inspirations from Burle-Marx’s ‘image 9A’ landscape philosophies of organic curves, shaded by free-standing shading pergolas. The office complex towards the North creates a façade towards the King Fahad Road acts as an introduction to the main tower (Promontorio B, 2022).

Image 8: Pictures captured during the construction phase of project (Skycity, 2020).

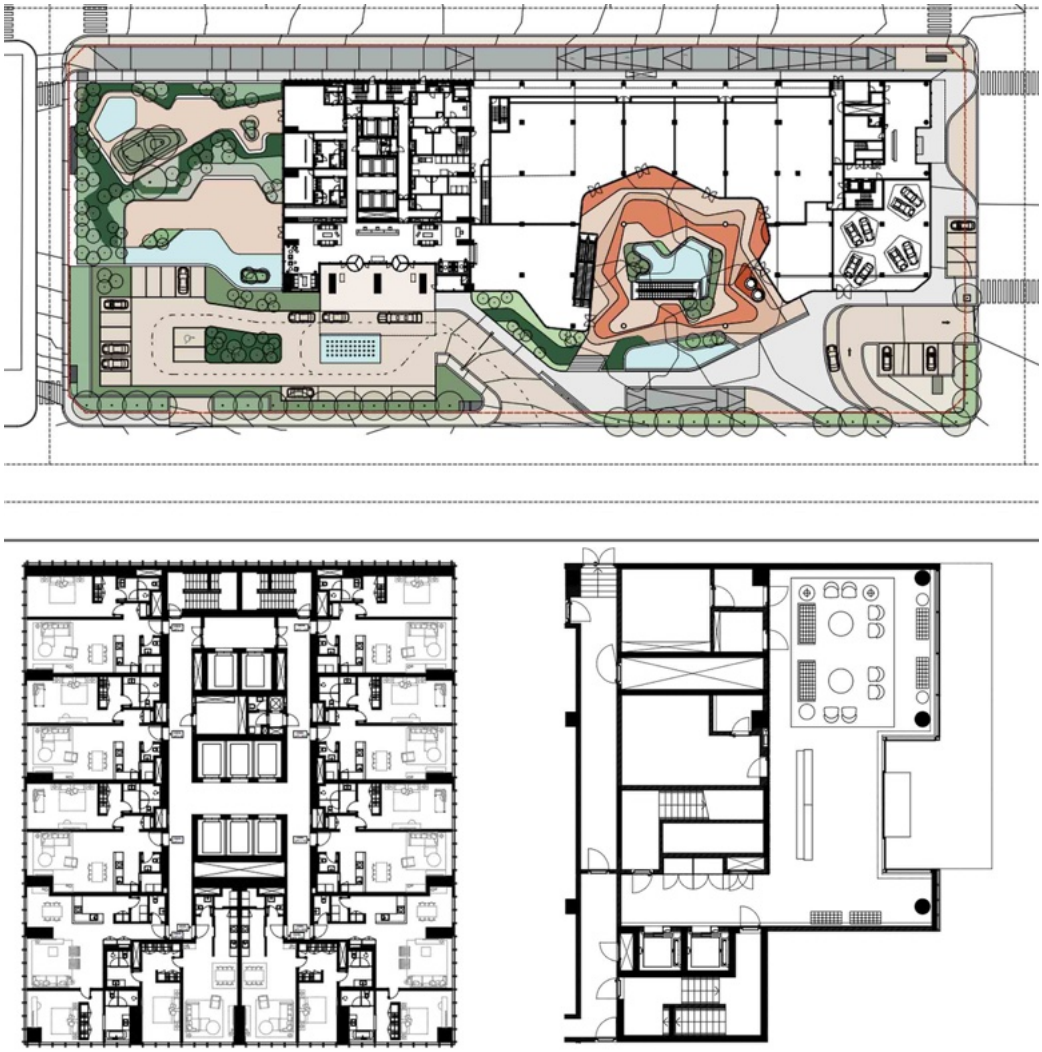

Image 9: A. Ground Floor Plan B. One /Two Bed Apartments 3rd to 12th Floor C. Office Lobby Plan

It can be understood that maybe clients were looking for European/American ideas or philosophies to attract attention or it was aimed to target the class that is focused towards Western ideas, however, if we compare them to some commissions of Foster, SOM, or Atkins in high rise developments, we can realize that the underlying referential concepts provide a deeper meaning, which lacks in this project. The proposal does not provide any local reference and instead refers directly to the European/American idea and modern Brazilian landscape philosophies. There were opportunities to intertwine the Arab cultural aspects in the interiors green spaces, and plazas with the European concepts, a colossal opportunity to put a deeper mark on this commission. Maybe continued work towards the later stages was a possibility, improving the ideas through the later stages instead of producing just working drawings, perhaps the working aspects took over the artistic expressions. This makes this another project in the skyline of Riyadh which can be lost once the neighboring plots are occupied. Perhaps, it is not fair to compare the work of Promontorio with the well-established class of European/American architects, as the firm is new and has a smaller built portfolio in the Middle East. Looking at the fact that currently, this is the only firm from Portugal that has

made progress in the Middle East, to make a mark in that region, perhaps could be done by developing a deeper understanding of the locals which may eventually open up bigger and better opportunities.

MASHHAD MALL (IRAN) 2019. Status: Pre Concept (on hold)

Iran currently possesses 16.8 percent of the world-proven OPEC oil reserves and was the first major region to establish fully operational production facilities in the region (OPEC, 2022). Iran has historically been a part of many empires which gives a diversified architectural heritage with the ancient sites of Persepolis, Tchoga-Zanbil, Shustar, Takht-e-Solyman, Pasargadas, Taq-e-Bostan, Naqsh-i-Rustam, Zoroastrian-monuments and wealth of Islamic traditional architectural landmarks with development and incorporation of multi-century elements makes it an important region. While especially talking about the importance of the region in the 20th century and modern settings, when the oil was found in 1908 at Masjid-I Sulaiman, a site where oil seeps at the Zagros Mountains of western Persia, a new chapter for the region opened, leading to the Anglo-Persian oil company. On June 17, 1914, Churchill presented the bill to buy 51% shares of an Anglo-Persian company for 2.2 million GBP, just 11 days later of the bill's passing. Franz Ferdinand of the Austro-Hungarian Empire was assassinated at Sarajevo, and Europe devolved into the theatre of WWI, which lasted four years with the armistice signed on 11th hour of the 11th hour of Central-European-Time on 11/11 in 1918 resulting in major territory/boarder changes for the central powers after the victory of Allies (Grutz, 1999). The biggest lesson learned from this was the role and dependency of hydrocarbon resources, and their supply/supplier in the future as it played a main dynamic in the results. For Persia, the results started growing British influence due to the treaty of Anglo-Persian treaty of during WWII led to the fall of the Qajar dynasty, the establishment of the Kingdom of Iraq in August 1921, and the civil war leading to the establishment of the Pahlavi dynasty with Raza Pahlavi becoming the leader and remained with British alliance until 1933 (Zirinsky, 1992). With the unfolding event of WWII in 1939, the Anglo-Soviet invasion of Iran took place in August 1941, the Raza did not remain in power and had to spend his life in exile (Beaumont, 1981). Tehran Conference was the agreement that aligned the powers of WWII, this meeting took place in Tehran from 28th November to 1st of December 1943. These decisions led to the combined efforts of Allied forces that resulted in the German surrender in the west on 7th May and in the East on 9th May 1945 (Ziemke, 1990). The WWII events took six years with the final Axis power signing the surrender documents at Tokyo Bay on the deck of USS Missouri on 2 September 1945, British and Soviet powers remained in Iran until May 1946 (Stewart, 1988). In the European and Atlantic theater of WWII, Iran's occupation and its resources played an important role for the Allies. This, Mohamad Raza Pahlavi son of Raza Pahlavi became the last Shah of the Imperial State of Iran from 16 September 1941 until his overthrow in the Islamic Revolution on 11 February 1979. During the second monarchy, Iran stayed aligned with the Western bloc, adapting major ideas and culture (Henniker, 2013). The architecture and urban planning ideas during this phase with the affordable public housing and state project commissioned by Iran have many modern projects that also shaped the new generation of architects and planners of the region (Jafari, 2018). Projects by Hans Hollein, Louis Kahn, Victor Gruen, Philip Johnson, Jorn Utzon, Architects of Taliesin Associated (Frank Lloyd Wright Foundation). Iran has also produced prominent regional architects Houshang Seyhoun, Hossein Amanat, Iraj Etesam, Hadi Mirmiran and Nader Ardalan (agha khan winner) have

created a portfolio of works that have learnings from modern/contemporary movements with a deeper understanding of the local and genius-loci of the region.

A Design proposal for a five-star hotel for an ongoing mixed-use mall in Mashhad designed by ATEC Consultants in the second biggest city of Iran. The project developer aimed to cater the project to a luxury operator, located at the North façade of the commercial complex, this preliminary concept is provided to assist the business plan as well as the right leaser. This proposal aims to develop a report with the covered areas to help the involved parties to come up with a conscious decision (Promontorio C). The proposal creates spatial links as an anchor between hotel, mall, and ballroom, creating a balance between a horizontal base and verticality, divisional units emphasized on the buildings sliced by floors. The formal and material instances of the Iranian landscape, harmonizing the project with Mashhad's skyline, and the mentioned influences did not contribute to the contextual potential that the project might have. Economic feasibility is unknown despite the presence of diverse shareholders. There is no provided information regarding ecological sustainability since it was mentioned as a design priority. The composition of modern blocks magnifying a modular sense with the use of mullions - The weak presence and references of local shapes such as stones and materials as well as the local landscape only translating into the curving roof harmonize the skyline, such reference while seen from the eagle's eye or an aerial view might make sense in design renders, however, from the human-level view from the main road it is not visible to or perhaps gives a more direct reference to the 'stock mark chart' than the abstract reference of context. Here, if a detailed study of the local architectural references was conducted an aware and responsive design solution could have been created as the rest of the work could be done by a team of local quantity surveyors, architecturally there was a massive opportunity to provide identity in this new development that could have tied the historical/cultural references with a modern/contemporary interpretation.

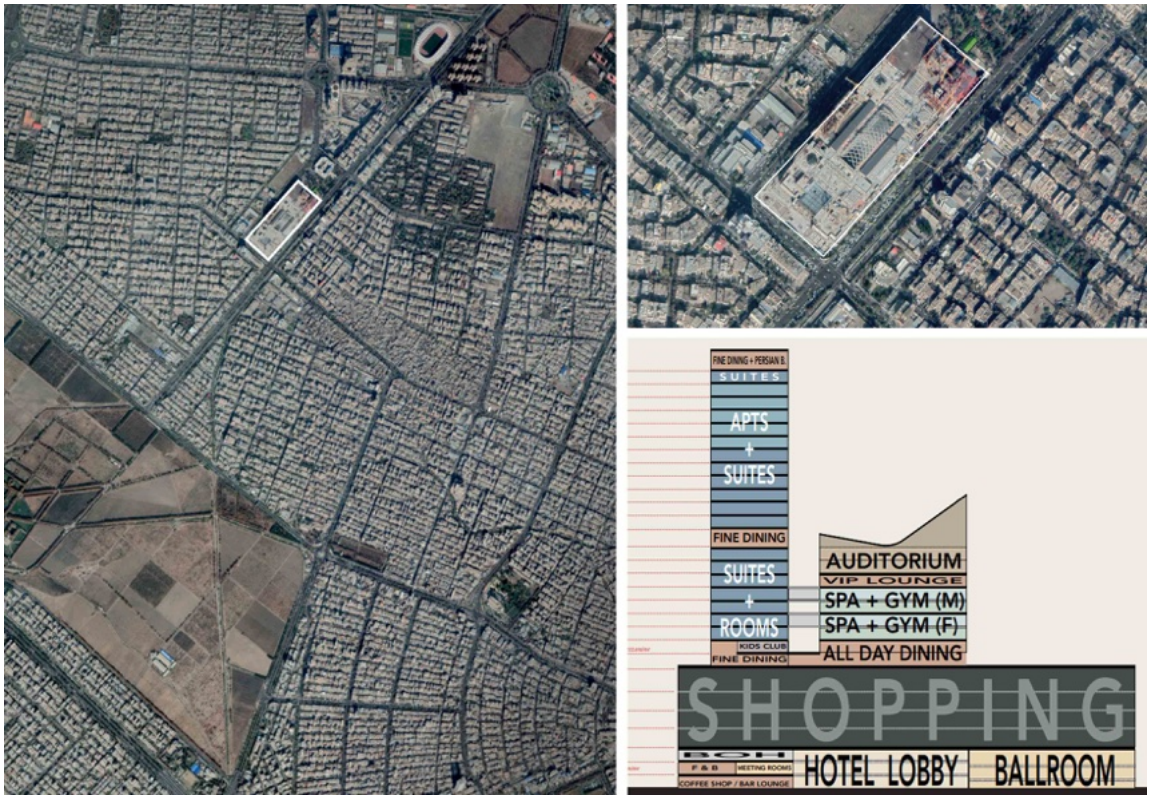

Image 10: A&B: Satellite images showing the location of project C: division of functions and program.

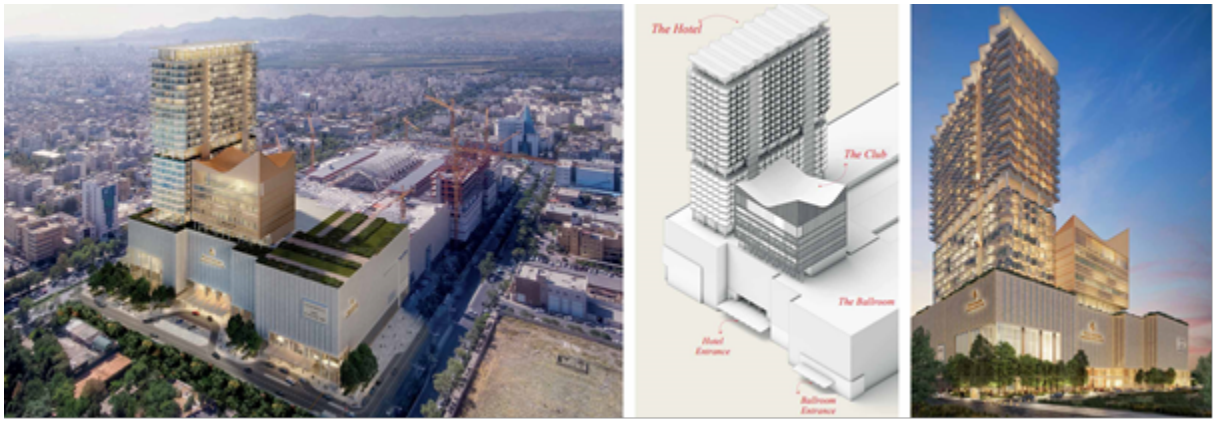

Image 11: Images showing the renders of the proposal.

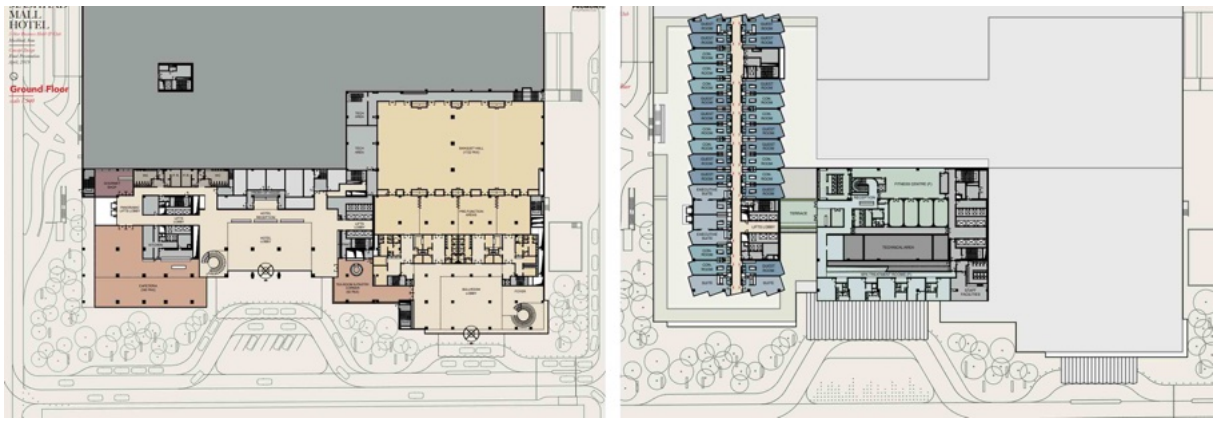

Image 12: A: Ground Floor/ Entrance level plan B: 8th Floor Plan with Hotel tower floor and Clubhouse

VENU JUMEIRAH, DUBAI (UAE) 2017. Status: Concept-Phase

If we talk about oil wells and the modern infrastructure of the oiling industry, American industry comes into mind, with the oil wells in Pennsylvania and Texas as these could be considered the first established wells with a complete infrastructure for industrial purposes (Vassiliou, 2018). However, historically, the Chinese used petroleum as early as the 4th century BC as fuel, and using it in its raw state as refining was not discovered (Gao, 1998). Associated with pearling, fishing, and trade routes, the Portuguese were the first Europeans to establish contact, taking control of important ports of the region in the 15th century they remained active till the 18th century, in trade and taxation for trade routes (Angelo, 2009). In 1820 British signed the treaty maritime treaty with the individual emirates and which resulted in the area that became 'The Trucial State' remaining a British protectorate until independence in 1971, becoming the United Arab Emirates. As a British protectorate, the pearling industry thrived until the early '30s when the invention of cultured pearl and heavy taxation in the region wiped the industry (Carter, 2005). Oil seepages were known in the region for a long time however due to the redline agreement the full-scale explorations took place in 1958 with valuable oil finds and the first commercial success began with the start of export in 1952 (Heard, 2013). After independence, the country came up with a vision for development and an independent economy. Currently, UAE holds 8.9 percent of the OPEC-proven oil reserves (OPEC, 2022). At the start of the 21st century, Dubai's ruler came up with the project to build artificial islands with the smallest one Palm Jumeirah being 25 km in area followed by the Jabel Ali, Deira, and the World. Although the projects proved a success with international attention and investment, the 2008 crisis delayed the completion of these ambitions and some of these islands are still under construction (Ghaffari, K et al. 2017). These developments including the inland expansion and construction of mega projects got the attention of international tourism, banking, and investment. This resulted in a significant population increase in recent years as a result of major economic growth in certain economic sectors. This led to an influx of workers from diverse cultural and religious backgrounds, increasing the population from 0.29 million in 1970 to 9.5 million in 2019, the current population is composed of 11% Emirati citizens, and the rest are expatriates (WB, n.d).

Image 13: A. Satellite image showing the site B. Location of plot in the proposed master plan.

Image 14: Renderings of the Proposal.

Jumeirah Central is a large master plan 'Image 13' developed by Dubai Holding emirate's state company, the proposal was developed for 2020 aiming towards the Dubai expo. Plot had a prominent location right on one of the main avenues, connecting right across with the public transport facility (Promontorio D, 2022). Mixed-use spaces synthesized with walkable networks**,** the composition of horizontal and vertical volumes with a 45-degree rotation on one side for accessibility**,** hierarchizing the hotel based on vertical slices. Regarding the local requirement and context relationship, the Modern adjacent buildings and plazas were the central themes of contextualization with almost no perceivable cultural significance. Economic feasibility is in crucial doubt, Ecological sustainability is not addressed as a priority for the project, and the high influence of American/European enterprises for the stake/investment in the project is visible. A modern volumetric project with a mixed-use approach, linking the project to the urban fabric of the ongoing developments in Dubai. However, the lack of contextual qualities that have a deeper understanding of Arabia as a whole in the project is not evident. For this project, there was an opportunity to study the Burj-al-Arab, Jumeirah Beach, and Me-Dubai by Melia as some of the projects that could have provided a reference for a hotel in such an ambitious master plan. These precedences, with their abstracted link to the initial concepts of Sheraton Grande Doha, Movenpick Buraydah, or perhaps the more recent Four-Season Hotel in Manama could have provided the loci to incorporate and study the local in abstracted modern.

Gulberg Greens (Pakistan). 2018. Status: Pre-Concept (shelved/on-hold master plan)

Pakistan has a rich history architecturally with ancient civilizations with sites such as Mohenjo-Daro, Takshashila, Takht-i-Bahi, Mehrgarh, Rehman-Dheri, Harappa, Ranigat, Baltit-Fort, Derawar-Fort, sites of Nagarparkar and many monuments/forts/religious and religious structures from the Mughal era along with the British colonial architecture building in major cities of the region. This provides a diverse and rich architectural heritage to the region. With the initial school of thought developing from the offspring of the colonial-architectural/design schools, soon the development of the local modern practices influenced by the mainstream Western philosophies was evident. The modern history of the region can be traced to the post-WWII decolonization with newly carved regions of East & West Pakistan. Multiple state-level projects to foreign architects and planners were commissioned including the purpose-built new capital city of Islamabad in West Pakistan, based on the master plan proposed by a Greek firm led by Konstantinos Apostolos Doxiadis, the Parliament building complex designed by Louie Kahn at Sher-e-Bangla Nagar in East-Pakistan 'now Bangladesh' commissioned in the 1960s. Faisal mosque '1976-1986', is another important project that was initially submitted as a proposal for Ankara by Vedat Dolokay, but eventually realized in Islamabad (Ankara, 2007). The Gulberg Green mixed-used project is proposed on the master plan in Islamabad's suburb developed by the IBECHS 'Image 15A' at the intersection of the historic city of Rawalpindi and a purpose-built capital city of Islamabad based on the grid-iron plan. This provided an open playground at the disposal of designers, where if the correct study was taken, a feasible solution could have been realized. The projects that could have been studied to understand the interests, feasibility, requirements, sustainability, and financial capacities of the assignment, a case study of Centaurs designed by Atkins, Emporium Mall designed by Aedas their success/shortfall, or the local architectural examples of a mixed-use commercial project of Dolmen City by ASA pvt. Ltd, Ocean Mall by Arcop pvt. Ltd, or by more celebrated local modernists architects that anchor the projects contextually with the fine examples of

Lahore Mall and Fortress Mall by NADA and Forum Karachi by HFA, the two practices that understand the requirements and propose contextual solutions accordingly, this could have helped in proposing suitable program and proposal that follow the local dynamics.

While analyzing this ambitious proposal, with the renderings that may excite the eye of the commissioning authority, but financial feasibility while finding the investors. It gives the idea that while developing the proposal, the firm ambitiously translated the Middle Eastern exposure and tried to impose it on Islamabad. However, if we look at the immediate context the small water reservoirs which can be used for these activities are not active. The observation eye shows the banal understanding of the designers, a direct imposition of something that could be seen in London, Niagara Falls, Las Vegas, Singapore, Moscow, and Shenzhen with the major views of skyline or landscapes, this kind of proposal at this location with no specific city views, and that opens to the public low rise housing zone, showcases the surface level studies or the ambitious aims of the investors to sell the project. The realization of such ideas is highly unsustainable and non-feasible. Multiple examples of successful and unsuccessful attempts can be found in other mega cities of Karachi and Lahore. However, having a local architect or vision of the area with a deeper understanding can only be achieved if someone with a local understanding is hired at an earlier stage, superimposition of external ideas always brings vague ideas to the table which often end up half-baked or end up being shelved.

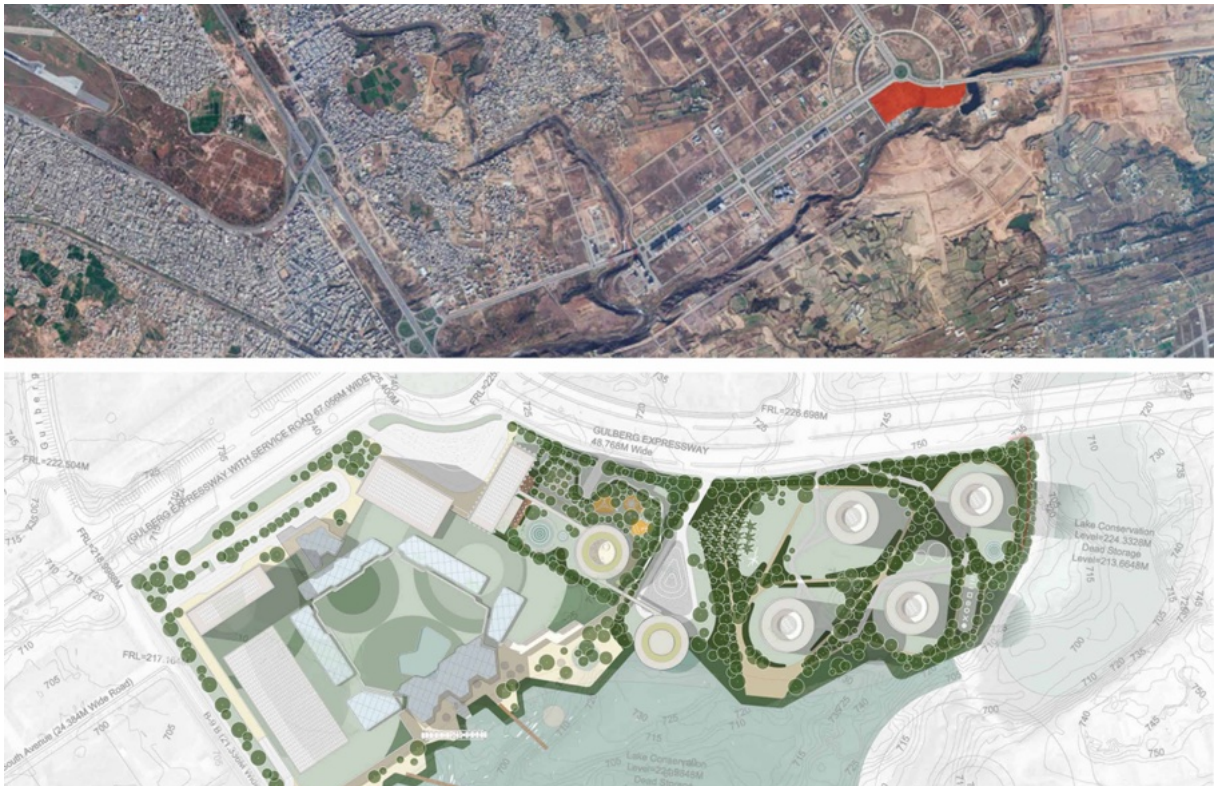

Image 15: A: Satellite image with the site. *B: The proposed master plan of development.*

Image 16: Renderings of the proposed master plan.

DISCUSSION AND CONCLUSION:

While going through the list of primary office strengths, it is difficult to spot a couple of names in the main design team that resonates with their origin from Middle Eastern or Oriental countries. It can be said that the practice is fairly new and compared to their counterparts who worked in Asia have a long-standing history with the projects and a deeper understanding due to the integration. It is easy to win a bid or to get into the projects but to be in those markets for the long run is not possible without understanding the contextual necessities. Additionally, it is not easy to produce solutions that have international ingenuities, along with a more learned, local, and humane touch. The projects discussed can be seen as the offspring of the main resources, but the vision of having clean energy and the future of the city is also evident in the region's ideas for the future, having sunny deserts with an abundance of building materials, and workforce from neighboring countries. As the world is transitioning from coal to hydrocarbon, if the future is solar, Kinetic/wind, or nuclear energy remains a vital question, however, having naked deserts with an abundance of sunlight, if filled with solar fields and wind turbines might help the transition from oil if required, but is it feasible? The architectural development of modern and contemporary practices though displayed an utterly solid Western influence, the energy played a major role which is in middle eastern cities. In this sense, a stronger link between sustainability considering energy resources and contextual/cultural/heritage-shaped realities has to play a critical part in future developments.

Project.	Analysis:
Floresta Gardens Qatar Unrealized Proposal	Design concept evaluation: Intended to be a sequence between the public realm and private space, harmonizing between street layouts into the surrounding areas, and creating connections between new neighborhoods. However, gives an abstract image of European social housing. Local requirements/Context-relationship: The creation of a neighborhood using the elements of different volumetric settings and heights with an aim to create a traditional village. Qualitative analysis with the project description. Feasibility, Sustainability, and Influences: Economically feasible, doubts on geographic sustainability, Mediterranean influence rather than the region's inherent quality. Design language/character/Innovation: The fusion between designers' subjective understandings and the modern state of the art. The main axis meandering along the surrounding blocks echoed with neighborhood character
Rafal Living Riyadh, KSA Built	Design concept evaluation: a mixed-use project linking directly the public to the private realm. Combination of recreational spaces and private life Local requirements/Context-relationship: No significant local spaces were identified Qualitative analysis with the project description. Feasibility, Sustainability, and Influences: economic feasibility is projected. Geographical sustainability is doubtful due to the gardens initiated for both ground floors and rooftops Design language/character/innovation: A modern block illuminating the matter of transparency, high-rise volumetric totality indicating technological advancements.
Mashhad Mall Iran Pre-Concept On-Hold	Design concept evaluation: spatial links as an anchor between hotel, mall, and ballroom. Creation of a balance between a horizontal base and verticality. divisional units emphasized on the buildings sliced by floors Local requirements/Context-relationship: The formal and material instances of the Iranian landscape. Harmonizing the project with Mashhad's skyline. The mentioned influences did not contribute to the contextual potentials that the project might have Feasibility, Sustainability, and Influences: Economical feasibility is unknown despite the presence of diverse shareholders. There is no provided information regarding ecological sustainability since it was mentioned as a design priority. Design language/Character/Innovation: The composition of modern blocks magnifies a modular sense with the use of mullions. The weak presence of local shapes such as stones and materials as well as the curving roof harmonizes the skyline.
Venu Jumeirah Dubai, UAE Concept On Hold/Shelved MasterPlan	Design concept evaluation: Mixed-use spaces synthesized with walkable networks. Composition of horizontal and vertical volumes with a 45-degree rotation on one side for accessibility. Hierarchizing the hotel based on vertical slices Local requirements/Context-relationship: Modern adjacent buildings and plazas were the central themes of contextualization. Almost no perceivable cultural significance. Qualitative analysis with the project description.

	Feasibility, Sustainability, and Influences: Economic feasibility in crucial doubt. Ecological sustainability is not addressed as a priority for the project. The high influence of American Enterprises in the project Design language/Character/Innovation: A modern volumetric project with a mixed-use approach. Linking the project to the urban fabric. Lack of contextual qualities in the project.
Gulberg Greens, ISB, Pakistan Concept/Proposal On-Hold	Design concept evaluation: Using the topographic shapes to create circular shapes. A mixed-use design with a linear connection between forms Local requirements/Context-relationship: Almost not in a considerable way Feasibility, Sustainability, and Influences: Economic and ecological sustainability seems impossible to apply. The weak influence of landscape reference in the floor tiles for presentation purposes. The stronger denotation of international discourses. Design language/Character/ innovation: liberal attitude in formal structuring the projects. Integrating the contemporary form with the lines of the pedestrian nodes and networks. Linear links between the blocks.

Table 1: Analyzing the 5 projects under the established criteria.

In Table 1, the qualitative analysis of the projects has been discussed to highlight the key points. The projects awarded in big master plans are just a small piece of a bigger puzzle. However, when a project has no budget constraints and investors willing to work openly, it opens big opportunities. In the projects mentioned above, the opportunity to create symbolic marks that leave a longer identity for the region or follow its cultural roots with a deeper understanding was possible. If we analyze regionally specifically the firm of Foster, RPBW, SOM, Atkins, etc., and their team formation we can see the incorporation of locals from the regional backgrounds where they are building projects. Works of the firm found by Frei Otto's apprentice Mahmoud Bodo Rasch's 'The SL Rasch GmbH' their understanding and translation of Arab culture can be considered noteworthy precedence for the contemporaries competing/designing in Arabia. Countries hold a bigger meaning. Hiring international practices that are equipped only with the understanding of the Western world and the general public demands, puts the region's permanence and sustainability at stake, as the Middle East possesses whole different cultural practices. It could be a beneficial factor for certain kinds of projects that focus on the interests of the European/American eye and attract Western societies for tourism/business and investment. However, further looking at the academic/industrial activities apart from the practice with the lectures conference/scholarly activities, and participation of the firm's partners and design lead teams its mostly European/American based universities/scholarships and forums, participation in Asian universities scholarship programs in Asia is minute. As a consequence, the outcome is nothing but to practice the international discourses regardless of the inherent qualities of the context and perceive the land as a tabula-rasa. However, with the integration of local and international diversity, there is a scope to bring the projects to the table that will not only serve the commercial but heritage/cultural objectives. However, it can only be achieved by getting a deeper understanding they have to get into the academic/professional bodies of the Orient, there are multiple organizations/institutes/forums that will be open to host, receive and discuss the works and collaborate. It, however, really depends if the firm is ready to put in the work to understand the genius-loci of the region

or just has commercial interests by navigating in the Persian Gulf and networking for the feasibility of the for-profit design proposals or to put Lisbon on the international by proposing culturally aware design solutions. Also, it can be concluded that the abstract vision of the local by the foreign architects does not necessarily reach an authentic vision of a context, or sometimes their generalized vision of the architectural practice in the middle east can end in a predictable image as this signified denotation might differ from the subjective character of the architecture in each specific country. Therefore, Promontorio's incapability in this regard is that they could not achieve the results produced by neighboring European firms and reach the excellence of their portfolio in the Middle East, which can be only achieved by the cooperation of the locals in this firm. This will not only give future projects a more realistic understanding of the character/context but also it will contribute to the idea of participation discussed by scholars such as Christopher Alexander and John Habraken. Other than that, it might mislead to 'generalized tradition' or 'abstracted culture' and 'modern imposition of the West', if the company gets the award of commissions in the Middle East or Asian countries in the future.

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AN EPIDEMIOLOGICAL PERSPECTIVE TO THE "MEME" IN ARCHITECTURE: A READING ON THE CONCEPTS OF "SUSTAINABILITY" AND "PARTICIPATION"

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ABSTRACT

The study aims to understand the transmission mechanisms of concepts popularized in architecture among individuals and to develop an understanding of the propagation of these concepts. In this direction, it focuses on the concepts of "sustainability" and "participation", which have become prominent in architecture in recent years, from theory to practice, from professional works to student projects. The study benefits from the memetic theory, which deals with the transmission of things such as ideas, habits, stories, customs, and beliefs between individuals regarding the formation of cultures. Memetics is based on the idea that cultural elements are transmitted between minds through a gene-like element ("mem"), and during this transmission, "memes" cause cultural evolution by showing replication, variation, or selection like genes. The concept of "meme", which is defined as "a unit of cultural transmission", is borrowed from memetic theory and used as a conceptual tool to examine the spread of the two concepts (sustainability and participation). In this context, literary media of architecture have been considered significant "meme pools" related to the subject. These meme pools, where architectural productions have already accumulated, provide a traceable ground for observing the spread of concepts. Epidemiology, which investigates the frequency of occurrence and distribution of diseases in a particular population in medicine, has been used as a method to examine the spread of the concepts. Thus, it was possible to trace spreads with the help of visualization of numerical data. *Mimarlık, Arredamento Mimarlık*, and *XXI Mimarlık* journals, which stand out as significant resources reflecting the production agenda of the time they were published in Turkey, were considered a sample of the study.

As a result, a reading method was developed to make visible the state of spread that can be described as intuitive as cultural formation using memes. The graphs obtained enabled the observation of the years in which the concepts in the meme pool increased and decreased. In addition, in parallel with the

“sustainability” and “participation” memes, it is observed that other memes that make up the “meme complex”, such as “ecology”, “energy sensitive design”, “decarbonization”, and “democracy”, “commons”, “solidarity” increased, diversified and strengthened each other gradually. Thus, it is ensured that the detection, which is designated as a starting point, is discussed and visualized through the associated theory and the developed method.

KEYWORDS: memetics, memes, epidemiology, sustainability, participation

INTRODUCTION

Architecture has an environment that includes numerous visual and literary productions. In this environment, it is observed that some concepts come to the fore from time to time, and productions are concentrated in some foci. The adoption and reusing of concepts in the architectural environment by other actors mediate the proliferation of related concepts. Especially today, with the increase of digital tools and communication possibilities, the ability to follow productions has made it possible to develop an awareness of concentration and dilution situations in concepts. In this direction, the frequent encounters with certain concepts in particular periods, in other words, the popularization of the concept and the penetration into production, constitute the study's starting point. The study aims to understand the transmission mechanisms of concepts popularized in architecture between individuals and to develop an understanding of the spread of these concepts. In this context, it focuses on the concepts of "sustainability" and "participation", which have become prominent in architecture in recent years, from theory to practice, from professional works to student projects.

Starting from the idea that concepts are adopted and reused by other actors and thus triggering a spread, the phenomenon of "culture", which has a similar situation in terms of the transmission of (cultural) representations, has been examined. According to Sperber (1996), who considers the transmission of ideas regarding its role in the formation of cultures, ideas can be transmitted, and by being transmitted from one person to another, they may even propagate. Some ideas, such as religious beliefs, recipes, and scientific hypotheses, can spread and permanently affect the entire population in different versions. Culture consists primarily of these contagious ideas and of all productions (writings, works of art, tools, etc.) whose existence in a shared environment allows the propagation of ideas (Sperber, 1996). A representation can be cultural in different ways. Some representations may spread slowly through generations, such as traditions, or in a rapid but short-lived, such as fashions typically seen in modern culture (Sperber, 1996). With a similar approach, many concepts are transferred from mind to mind thanks to communication environments in architecture, and they are included in the architectural culture by showing different spreads. In this context, "memetic theory", which deals with the transmission of cultural elements between minds, was used to explain this spread.

"MEMES" AS A CONCEPTUAL TOOL

The memetic theory makes an analogy between cultural evolution and genetic evolution. It is based on the idea that cultural elements are transmitted between minds through a gene-like element called "meme", and during this transmission, memes bring about cultural evolution by replication, variation, or selection, like genes. Memes, claimed to be copied among individuals in a way that can be called imitation in a broad sense, are described as "a unit of cultural transmission or imitation". Although the word is associated with "memory" in English or with the French "même" (same, selfsame), it was coined by Dawkins in 1976, similar to the monosyllabic gene word. (Dawkins, 1976).

The word is explained in the Oxford English Dictionary as "A cultural element or behavioral trait whose transmission and consequent persistence in a population, although occurring by non-genetic means (esp.

İmitation), is considered as analogous to the inheritance of gene" (Url-1). Dawkins (1976) gives examples of things that can be transferred between individuals, such as "tunes, ideas, catch-phrases, clothes fashions, ways of making pots or of building arches" as memes. Dawkins (1976) himself explained the replication process of memes thus: "Just as genes propagate themselves in the gene pool by leaping from body to body via sperms or eggs, so memes propagate themselves in the meme pool by leaping from brain to brain via a process which, in the broad sense, can be called imitation". Memes are seen as selfish structures that try to propagate and spread around as much as possible, regardless of whether they are positive or negative for us, and with these features, they are likened to viruses that use humans as hosts to spread (Blackmore, 2011). A meme needs to successfully complete each of the following four stages in order to replicate: 1)assimilation by an individual; 2)retention in that individual's memory; 3)expression by the individual in language, behavior, or another form that can be perceived by others; 4)transmission of the thus created message or meme vehicle to one or more other individuals. The replication loop is completed when the last stage is followed again by the first stage (Heylighen, 1998). The answer to the question of what a single unit meme consists of, or in other words, the unit of replication, is still unclear. Dennett (2014) describes meme units as "the smallest elements that replicate themselves with reliability and fecundity." A meme can be a part of a melody or the essence of a theory (Dawkins, 1976). However, there are "meme complexes" where meme associates with other certain memes in a way that assists each other's survival. Meme complexes are "co-adapted stable set of mutually-assisting memes" (Dawkins, 1976). Speel (1995) abbreviated mem complexes as "memeplexes". The feature of the memeplex is that the memes it contains are propagated more successfully than they are propagated alone (Blackmore, 2011).

Memes do not only exist in minds; they also exist in mediums such as books, journals, buildings, and photographs, which enable their transmission and are named differently by theorists ("meme vehicle", "replication machinery", "communicative artifacts", "signal templates") (Dawkins, 1976; Blackmore, 2011; Aunger, 2011). Thanks to the memes they contain, these mediums pave the way for future memetic propagation. Therefore, the number of people they reach, the way they reach, and their environment are highly determinative in terms of the possibility of propagating memes. Memes carried through "communicative artifacts" and continue to be replicated, strengthen the chance of transferring information and also increase the possibility of infecting others. In this case, "communicative artifacts" become a memetic "interactor" and enter into a close relationship with memes and therefore are as crucial as memes (Aunger, 2011). Just as genes do not succeed in replicating themselves at the same level, there are also those among the memes that are more successful than others. Dawkins (1976) associates this situation with "natural selection". Memes that can use their environment to their advantage are favored by selection. Some memes can quickly spread and become popular in a short time and then disappear, or on the contrary, they can continue to replicate themselves, spreading over a long time. Dawkins (1976) states that this situation, which he describes as "survival value", can be observed by looking at the spreads in the "meme pool".

In this context, the theory about the evolution of cultures can be associated with architectural culture, and it can be argued that the concepts that stand out with architectural productions act like memes. With the

help of the obtained perspective, the processes that we encounter periodically in architectural productions, such as the concentration or dilution of productions around a concept, can be evaluated in terms of the behavior of memes. The concept of “meme” borrowed from memetic theory can be considered as a conceptual tool to trace the concepts of “sustainability” and “participation” that have become popular in architecture. The architectural counterparts of the mediums (communicative artifacts) that enable the propagation of memes (concepts) between minds can be all the components that make up architectural media, such as websites, exhibitions, competitions, awards, books, and journals. It is also possible to describe these components as significant meme pools where relevant actors follow the productions of others. The memes (concepts) here are replicated in line with the four-stage process introduced by Heylighen (1998) and increase their number in the environment. In other words, concepts in the meme pool can be leaped into the minds of new actors and added to the meme pool as new productions. In such a mechanism, the number of memes in the pool can provide data to track the spread of the concepts studied. The journals that are published regularly and that provide a basis for following up for a long period are considered the meme pool. In addition, journals stand out since they reflect the production agenda of the dates they are published, and they are an important communication and interaction environment in literary architecture. In order to develop a reading method that will make visible the spread of the two concepts in the meme pool, the epidemiological examination used in medicine is borrowed and used in architecture.

EPIDEMIOLOGY AS A READING METHOD

Epidemiology, the branch of medicine that studies the frequency of occurrence, distribution, and determinants of diseases within a defined population, includes counting health-related events and comparing these numbers according to time, place, and people (Url-2). In epidemiological studies, collected statistical data is visualized, analyzed, and interpreted (Figure 1). In such studies, it is possible to trace a general spread using numerical data obtained on an individual basis. Epidemiological models have also been found applicable to studying the spread of cultural representations by Sperber (1996). According to him, explaining culture is explaining why and how ideas are contagious, and epidemiology can serve that. Epidemiological models, which are based on the idea that a macro-event such as an epidemic occurs with the cumulative effect of an individual catching the disease, will also be effective in examining cultural phenomena formed by the cumulative effect of numerous micro-mechanisms (Sperber, 1996). In the study, the "epidemiological model" proposed by Sperber to examine cultural representations by borrowing from medicine is carried into architecture. Thus, epidemiology has been evaluated as a method to reveal the graph of spreading processes of "sustainability" and "participation" memes which are added to the journals with individual productions. In parallel with epidemiology, as a research area that examines not the diseases themselves but their spread, research was carried out on the spread of concepts, not on concepts.

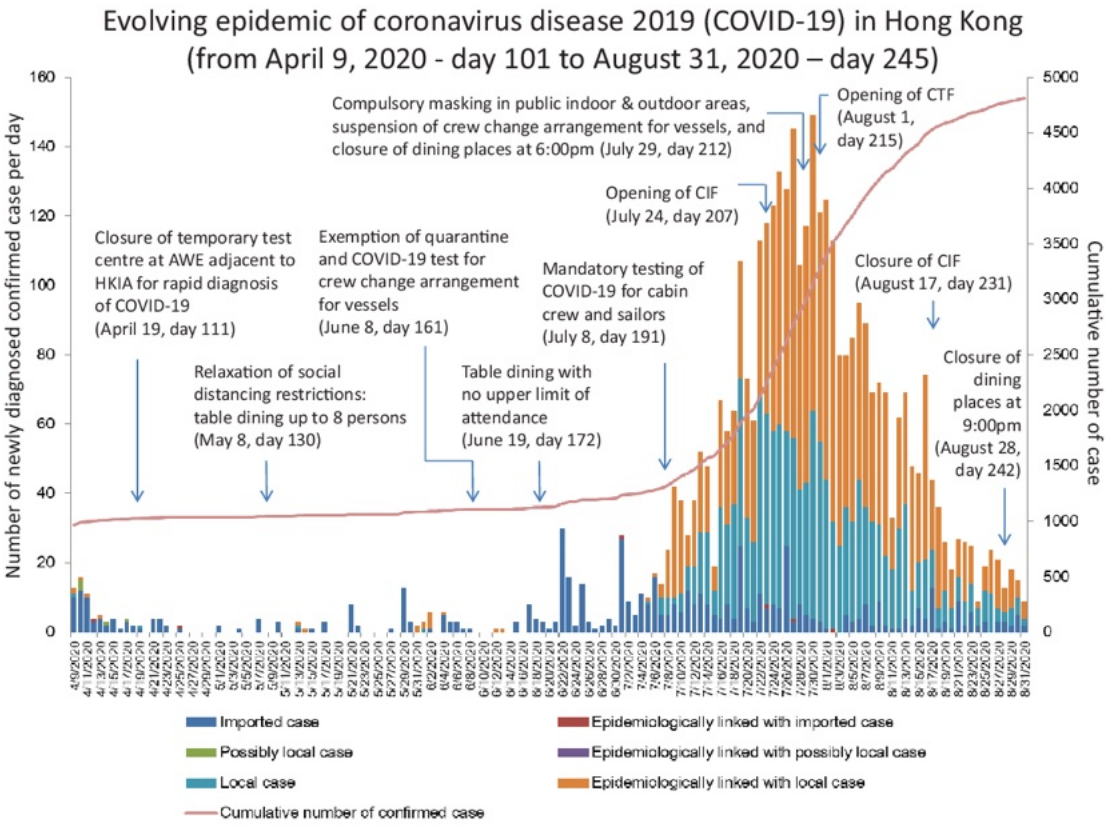

Figure 1. The Evolving epidemic of Covid-19 in Hong Kong from April 9, 2020, to August 31, 2020 (Url-3)

EPIDEMIOLOGY OF CONCEPTS: "SUSTAINABILITY" AND "PARTICIPATION"

As mentioned above, the epidemiological examination of the concepts was carried out through architectural journals, which are considered meme pools. Architecture journals which have a long history, include articles on architectural culture from a broad perspective, deal with practice and theory in a balanced way, and have a wide readership, offer a traceable ground in this context. The three essential journals that are common in terms of these qualities in Turkey, *Mimarlık, Arredamento Mimarlık*, and the *XXI Mimarlık* journals, were determined as a sample. The influential position of journals in meme transmission and their function as a meme pool is also reflected in the reviews of selected journals. Pamir (1999) emphasizes that *Mimarlık*, as a publication of the Chamber of Architects, was established to make accurate records of current events in the architectural environment and spread developing values in architecture. Similarly, Tanyeli (2016) emphasizes *Arredamento Mimarlık*'s close relationship with the architectural agenda as a medium of interaction and says that the journal is both a product of Turkey and the architectural environment revived after 1985 and one of the actors that brought this expansion into existence. *XXI Mimarlık* journal explains its purpose as providing the latest news in architecture, design, technology, and art while following the developments on a global and local scale. It defines itself as a platform that covers all the architecture and design industry actors, produced and read by them (Url-4). It can be said that since all three journals are effective media in the Turkish architectural environment, they pioneered the propagation of the concepts they included in their contents and also hosted the concepts on the production agenda of the periods they were published. In this context, *Arredamento Mimarlık* and *XXI Mimarlık* journals have been analyzed since their first issues. *Mimarlık* provides an important archive on

the architectural agenda due to its approximately sixty-year history (Url-5). However, considering the relatively narrow and focused content of the first issues (urban problems, professional-legal relations, political concerns, etc.), analyzing the issues after 1980 was found more appropriate for the study. All issues of the journals published in 2022 were also included in the study. The concepts of "sustainability" and "participation" were analyzed in the titles, and their frequency was recorded yearly. Thus, their spread was visualized over time with the help of the epidemiological method (Figures 2 and 4).

The productions made in different fields, such as buildings, representations, and texts, make a holistic contribution to the propagation of concepts. However, in order to objectively observe the two concepts in the study, research was carried out only on texts. Concepts are used to have various meanings in different contexts. In the study, their usage in the context of architecture and urban was considered in accordance with their dictionary meanings. For "sustainability", the definitions in the Oxford English Dictionary as "The quality of being sustainable at a certain rate or level" and "The property of being environmentally sustainable; the degree to which a process or enterprise is able to be maintained or continued while avoiding the long-term depletion of natural resources" were considered (Url-6). For "participation", the usages are in line with the definitions of "The action or fact of having or forming part of something; the sharing of something" and "The process or fact of sharing in an action, sentiment, etc.; (now esp.) active involvement in a matter or event, esp. one in which the outcome directly affects those taking part" were analyzed (Url-7).

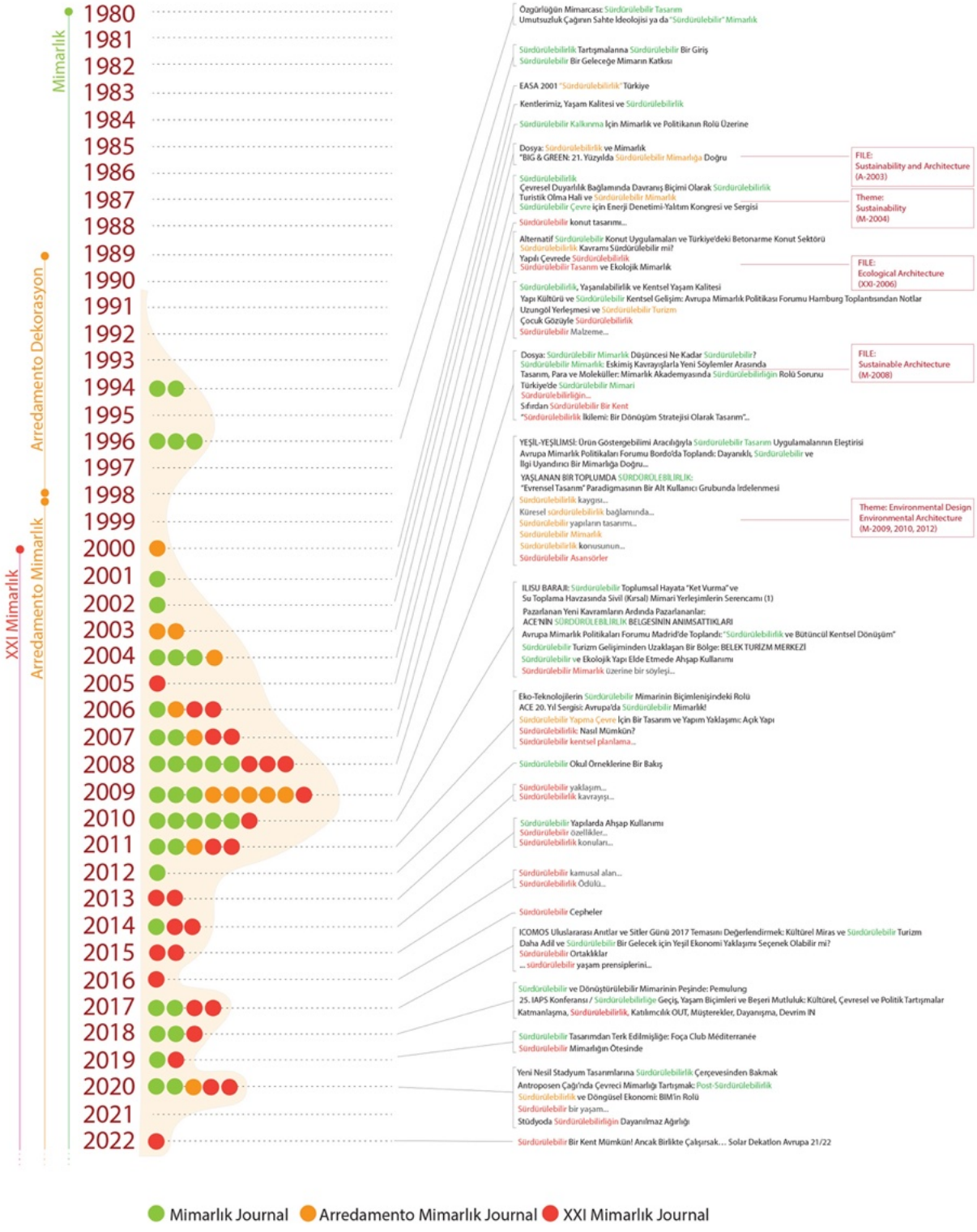

Figure 2. "Sustainability" Meme Spread Graphic

The graph obtained for the "sustainability" meme shows that the concept was seen only twice until 2000, and since this year, it has increased its replicating and reached its peak in 2009. The concept is mostly encountered in all three journals in these years, and it is observed that it was addressed as a theme or a file subject in 2003, 2004, 2006, and 2008. In 2006, there was a statement in *Arredamento Mimarlık* as *"Sürdürülebilirlik, son yılların en 'sevilen' konularından"* (Sustainability is one of the most 'liked' topics of recent years) (Contents, Issue 187). Although the concept continues to be replicated after 2009, a decline is observed on the graph. Parallel to this decline, in 2018, the title *"Katmanlaşma, Sürdürülebilirlik, Katılımcılık OUT, Müşterekler, Dayanışma, Devrim IN"* (Stratification, Sustainability, Participation OUT, Commons, Solidarity, Revolution IN) is encountered (Doyduk, 2018). In addition to the spread graph of the "sustainability" meme, other concepts that made up a "meme complex" with this concept are also examined. Thus, the spread of memes belonging to the same meme complex can be read together. This reading shows that memes in meme complexes establish relationships to support each other's existence and strengthen their spheres of influence together (Figure 3). In 2009, when "sustainability" was seen the most, it is observed that the number of other memes in the meme complex, such as "energy sensitive design", "ecology", "decarbonization" and "solar energy" increased and diversified. At this point, it can be said that the memetic propagation that occurred triggered the replication of other related concepts.

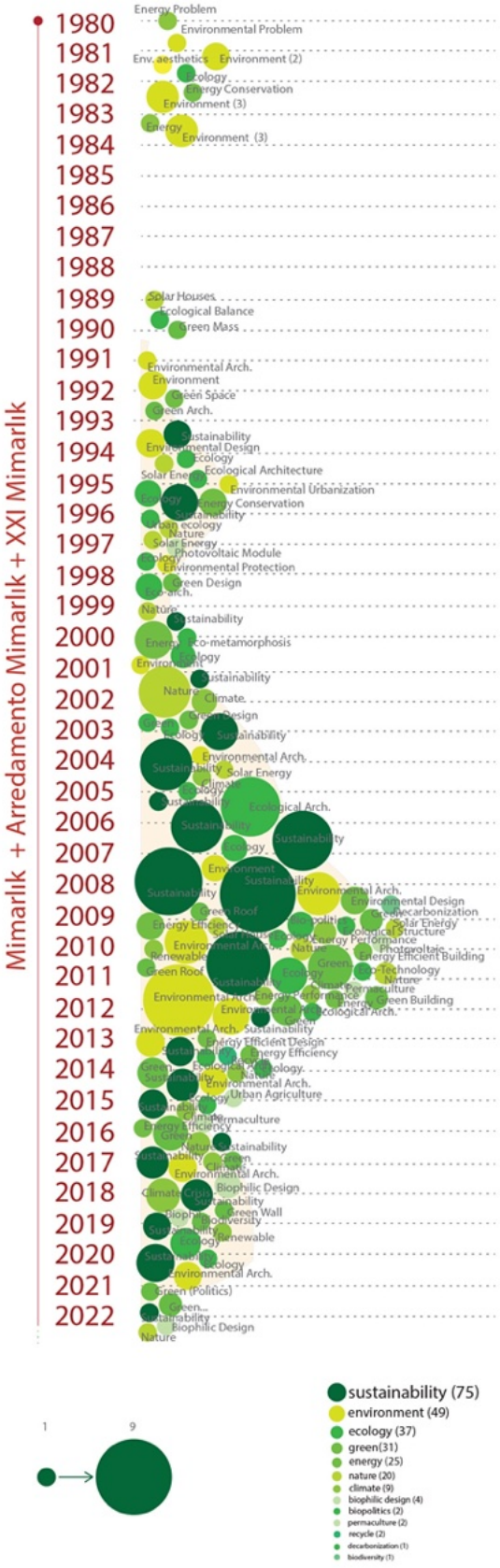

Figure 3. Meme Complex Spread Graphic Involving "Sustainability"

The "participation" was first encountered in 1982 and 1983 and was not seen until 1989. The concept appeared once in 1989, 1990, and 1991 and then did not appear in the titles of three journals for about 17 years. The concept was first seen in *XXI Mimarlık* journal in 2008 with the title *"Seyirci Kalma, Katıl!"* (Do not Be a Spectator, Participate!) after a long time, continues to replicate afterward; however, there is no intense replicating like "sustainability". The concept, seen in *XXI Mimarlık* journal in 2018 with the title *"Yeni Trend: Katılımcı Tasarım"* (New Trend: Participatory Design) and in all three journals in 2019, reaches its peak in 2021. This year, the concept is included in the main titles and themes in the *Mimarlık* and *Arredamento Mimarlık* journals, and there is a sudden increase in the number of memes in the environment. It is seen that the concept continues to be replicated in 2022.

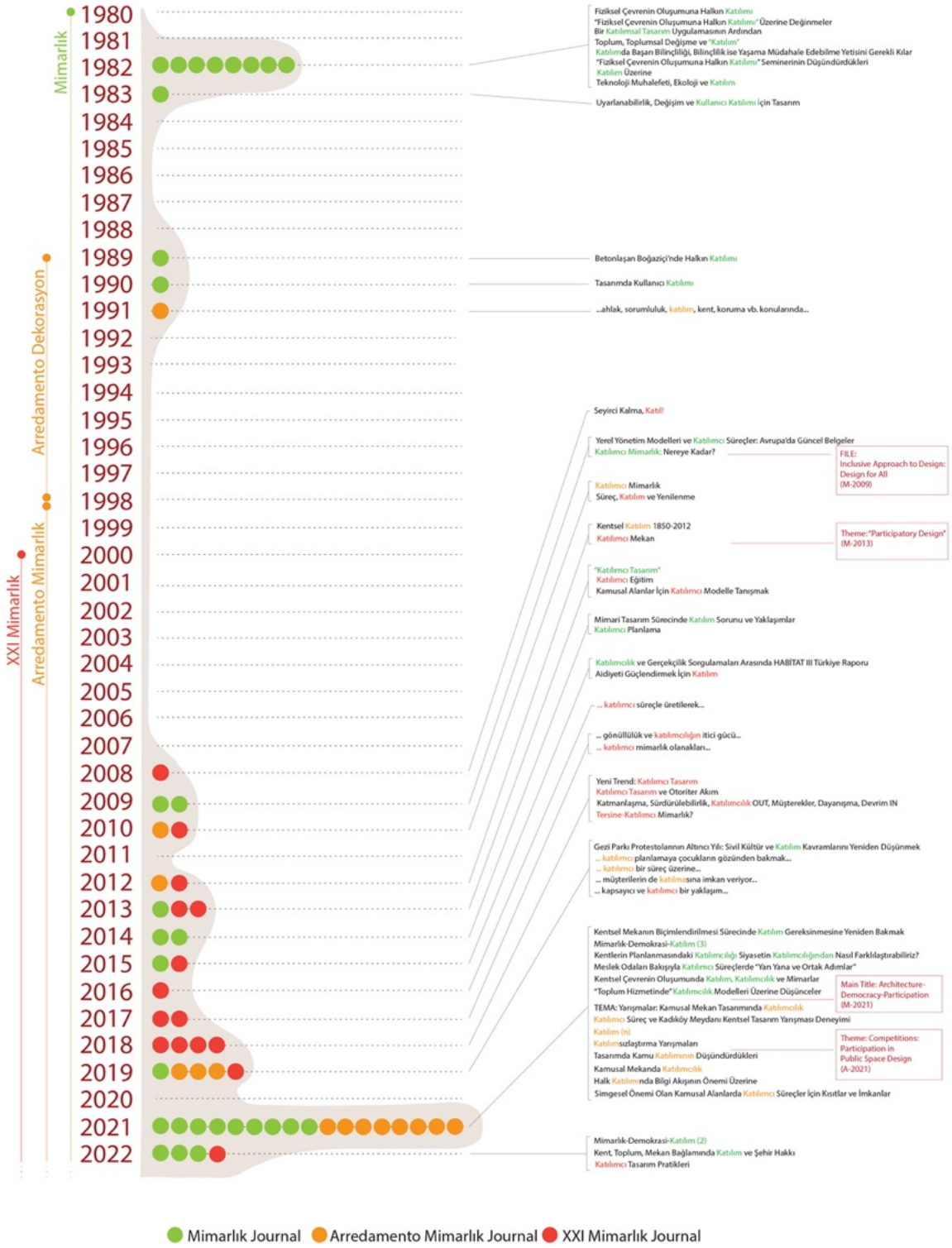

Figure 4. "Participation" Meme Spread Graphic

Along with the meme of "participation", the spread and frequency of other memes that make up the meme complex, such as "democracy", "commons", "design for all", "solidarity" were also examined (Figure 5). In 1989-90, in parallel with the "participation" meme graph, "equality" and "democracy" memes were seen. Between 2001 and 2006, "social responsibility", "universal design", and "design for everyone" memes were encountered, and especially after 2008, it was observed that the memes in the meme complex diversified and multiplied together and strengthened the replication of each other. Among the memes in the meme complex, concepts such as "commons", "collective production", "heteretopia", "solidarity", "accessibility" and "social design" seem to have intensified after this date.

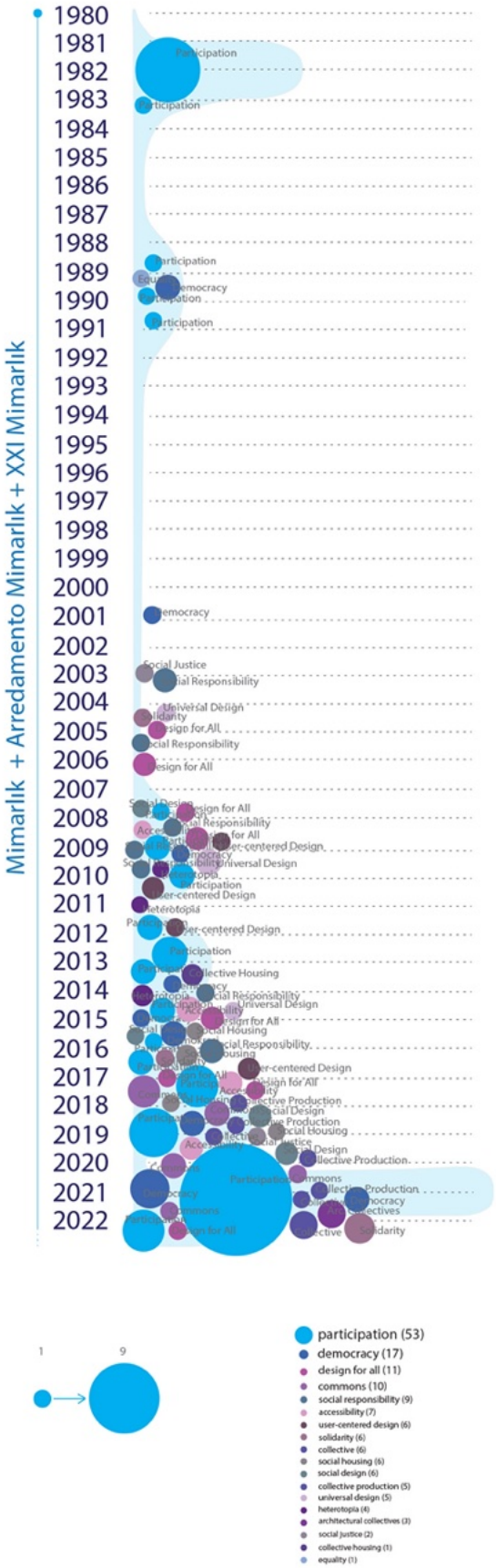

Figure 5. Meme Complex Spread Graphic Involving "Participation"

CONCLUSION

In order to understand the mechanisms of the spread of the concepts that come to the fore periodically in architecture, new expansions have been brought to the subject by applying non-disciplinary approaches. In this context, the memetic theory has provided a theoretical basis to explain the state of spread widely observed in architecture but can be described as intuitive. Evaluating the concepts of "sustainability" and "participation" as architectural "memes" has made it possible to develop an understanding and examine the spread of the concepts. The idea that memes also exist in communication environments and replicate through them has shown how influential architectural media is on memetic propagation.

In order to observe the spread of "sustainability" and "participation" memes in three journals designated as meme pools, a reading method has been developed through the epidemiological model borrowed from medicine. The graphs obtained enabled the observation of the years in which the frequency of the concepts in the meme pool increased and decreased. It was seen that the two concepts showed different spreads and that the success of propagating "sustainability" is higher than "participation". Additionally, while the concept of "sustainability" continued its replication over a wider period, "participation" drew a graph that slowly increased after 2008 and rose dramatically in 2021. The propagating success of memes can be due to various reasons. Different studies can be done for the causes of this situation. This study constitutes a beginning in this context. In addition, it is thought that the developed reading method has potential in terms of being applicable to different concepts. Thus, it can be applied not only to concepts but also to many conceptual and practical production areas included in architectural culture, such as design decisions, materials, construction methods, and representation techniques. It is thought that it will be possible to discover new and different relationships by making such a quantitative and qualitative reading on the productions that shape the field of architectural design. As a result, it is ensured that the detection, which is designated as a starting point, is discussed and visualized through the associated theory and the developed method. In this direction, it can be assumed that a potential reading method has been developed for future research to make different concept readings and comparisons.

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ARCHITECTURE 3.0: DIGITAL TRANSITION IN CONSTRUCTION. H-BIM IMPLEMENTATION FOR TRADITIONAL BUILDING ENERGY IMPROVEMENT

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ABSTRACT

The so-called third industrial revolution was born with the development of information systems and computers, within the framework of the digital age, and is characterized by a continuous increase in automation and speed of processes also thanks to ICT technologies (technologies of information and communication) and electronics. Having that in mind, this paper is aimed at analyzing the state of the art of the present professional progresses in engineering and architecture thanks to the use of advanced information systems such as BIM and H-BIM. The implementation of the architectural design, complementary and in synergy with the engineering one, has recently forced professionals and public institution around the world to use such informatic platform to gain a complete interconnection between all the involved processes. By means of an analysis of the present available platform features, this paper will show how novel performing technologies could be easily proposed and engaged in light of the most recent regulations on energy efficiency improvements, in light of the circular economy approach, the European Green Deal, and the Agenda 2030. Examples of realized architectural systems and buildings will validate such procedures opportunely used for the design and construction of 360°-performing executions where nothing is left to chance but everything is micrometrically predicted and interconnected.

Keywords: BIM, energy improvement, novel materials, construction technologies.

1. INTRODUCTION

Nowadays, it is well known that the construction sector is one of the largest consumers of energy worldwide. Moreover, about half of the world's population lives in urban areas and it is estimated that with population growth and rapid urbanization, the global urban population will increase to 66% by 2050 [1]. Consequently, for the comprehensible need of living in urbanized areas, where services and quality of life are presumed to be much easier, the total building stock is expected to nearly double by 2050. That will mean a continuous consumption of virgin land. Moreover, buildings are estimated to contribute to more than 70% of final energy use and greenhouse gas emissions; hence there is an extreme need to develop - or improve if present – a dedicated urban energy planning being a crucial tool to mitigate the energy risks in towns and the climate change in the globe [2].

To this scenario, just focusing in Europe, the use of buildings only accounts for 36% of CO_2 emissions while about 75% of the park built is highly inefficient, as it was built before the introduction of the energy regulations, and most of them will be in service at least till 2050 [3-5]. More particularly, European building stock is spreadly characterised by countless historical and monumental buildings whose building and construction materials as well as building technologies are often inefficient for an energy mitigation. To that, the most recent building stock results quite aged, especially the one realised after the 1960s-70s when the main line of action was the rush to build without particular criteria of efficiency, efficacy, not to mention canons of beauty. All of that has presently led to an absolute need to improve the energy efficiency, fostered by an increasing social demand for a better accessibility and comfort, the boost of the circular economy, the possible impact due to the rehabilitation on people life, social cohesion and inclusion, etc. in accordance with the main goals of the United Nations 2030 Agenda [6].

Europe is rather advanced from this point of view, with an increasingly awareness of the environmental aspects, the respect for the globe, the well-being of the population, all intended for an exponential but sustainable growth of the Union. Hence, fostering the existing buildings renovation – instead of promoting an indiscriminate novel construction - has become of primary importance to reduce the overall energy consumptions and to reach a sustainable, competitive and de-carbonized energetic system for the planet [7]. Such renovation is highly recommended by the "Renovation Wave" and the "Green Deal", flagship initiatives under the European Union to support the rehabilitation of millions of buildings in Europe over the next decade (fig. 1) [8]. Eco-design, novel performing energy materials and technologies, improved protocols are the main issues of the National Agenda of the Countries of the Union [9-11].

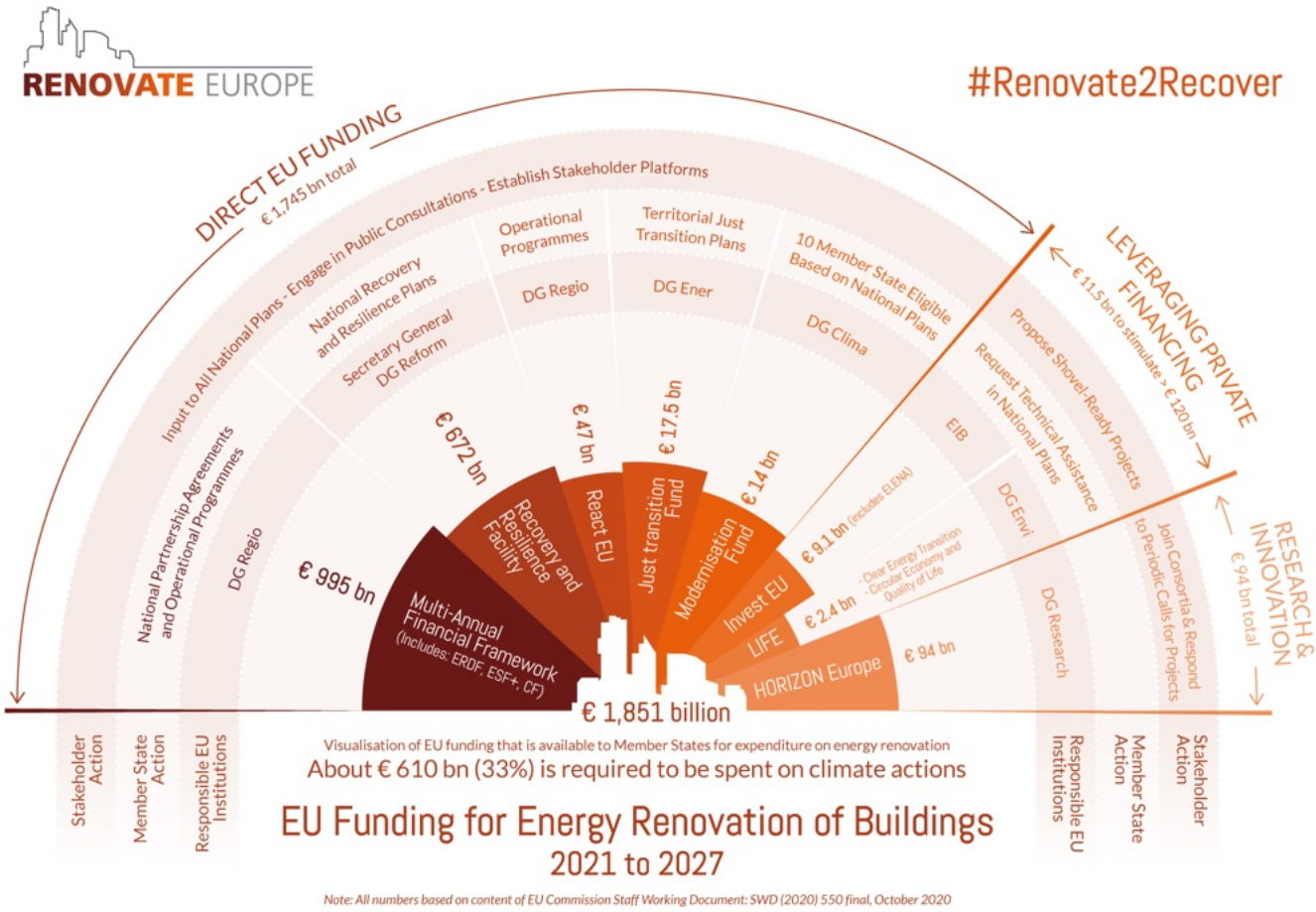

Figure 1. *EU funding for energy renovation of buildings (2021-2027).*

In compliance with the European recommendations and directives, the Italian governments started to issue a number of normative aimed at improving the energy efficiency in buildings.

As for the other European countries, the most important scheme, which made it possible to restart the national economy - after about a decade of recession - was the "Relaunch decree" in 2020 [12] that provided, and still provides thanks to legislative additions and modifications, a tax deduction of the expenses called "super bonus" (fig. 2), for the implementation of specific interventions aimed at the energy efficiency improvement (eco-bonus) and/or static consolidation to mitigate the seismic risk (sisma bonus), currently governed, respectively, by the articles 14 and 16 of the Decree-Law n. 63/2013 [13-14].

The Superbonus divides the interventions into two macro-categories:

A) main or leading;

B) additional or towed.

Among the first category, the bonus is essentially due for:

1) thermal insulation interventions;

2) replacement of the air conditioning systems on the common parts of multi-storey buildings;

3) A/C systems replacement in single-family apartment or property units that are functionally independent;

4) anti-seismic interventions.

Among the towed interventions:

1) energy efficiency interventions;

2) installation of photovoltaic solar systems and storage systems;

3) infrastructure for charging electric vehicles;

4) elimination of architectural barriers.

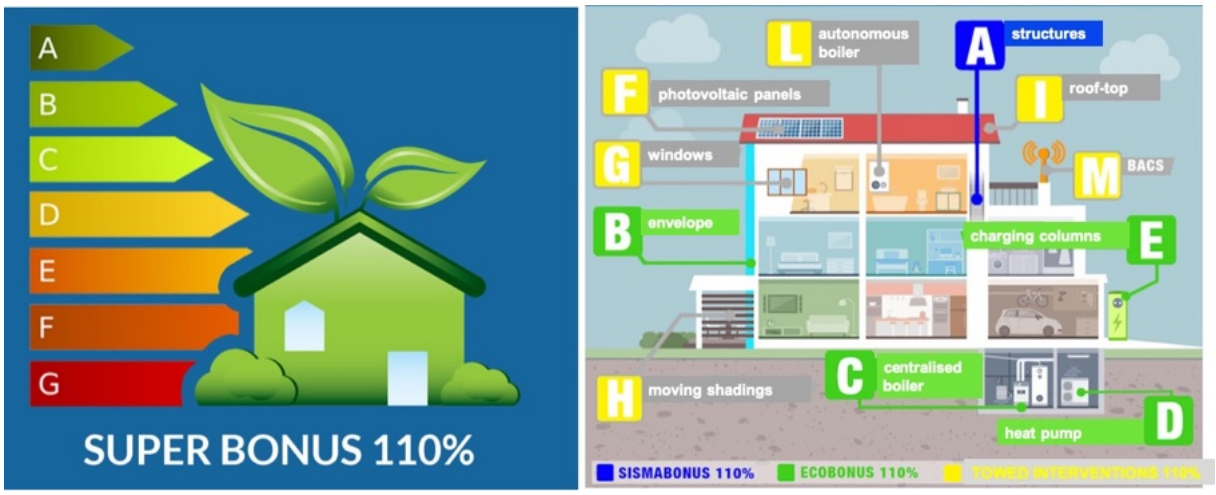

Figure 2. *The Italian Super Bonus scheme.*

To achieve that, new technologies and materials are continuously developed, with hundreds of new services and products available on the market every day. Consequently, the world of professionals and entrepreneurs was forced to adapt to such novel visions, keeping up to date on the availability of such new products, on an ever more evolving and increasingly stringent and demanding legislation. Unfortunately, the traditional ways of designing became too obsolete to easily manage the architectural and the engineering projects in a synchronous, interconnected and, at the same time, effective way. However, the computer and virtual technologies has come to the aid of the sector, which was forced to adapt, with such new extremely effective and manageable systems and design methods.

This paper is aimed at reviewing the BIM and H-BIM technologies intended as contemporary and essential tools to facilitate a complete and integrated architectural and engineering design. Such methodologies will be discussed and direct applications on rehabilitation projects will be shown.

2. THE H-BIM METHODOLOGY AS A TOOL FOR EFFICIENT MANAGEMENT OF THE ENERGY EFFICIENCY PROCESS OF THE BUILT HERITAGE

Talking about sustainability and environmental protection, as well as economic sustainability, the implementation of project management processes and built heritage, with specific reference to BIM-processes

oriented, represent today more than ever a necessary tool to properly undertake the phase of energy transition. Especially in building/built heritage BIM needs to be used to comply with the recommendations of the European Green Deal and the United Nations Agenda 2030 as the amount of energy absorbed by buildings and the energy saving inherent in the building stock, to date, contributes strongly to CO_2 emissions.

In a context in which, both for the design of new buildings and for the renovation project of the existing architectural heritage, an integrated and multidisciplinary approach is increasingly necessary, in which different professional figures who interact one with each other converge, BIM and Heritage BIM (H-BIM) are important tools to create processes that can efficaciously support interventions in line with contemporary standards and requirements, but respectful of the changing environment, that draw from it instead important design cues and that do not distort, or alter, the historicity of a building in the case of an artefact of historical value.

As defined by the National Institute of Building the BIM [15] turns out to be the digital representation of physical and functional characteristics of an object but, in addition to that, it can reasonably be said that the application of BIM, or H-BIM if a restoration/rehabilitation project is foreseen, processes are fully part of the activities, of an integrated and intelligent project action methodology. In some cases, it tends to circumscribe and/or reduce the meaning of BIM to a simple 3D modelling when in reality if the aim is constructing new buildings, this methodology allows to have an instant control and facility management during all stages of the process. In the case of a project on existing built and architectural heritage, the BIM methodology allows, once obtained adequate levels of knowledge of the architectural artefact, to simulate in advance the planned interventions and understand, even before starting the work, any possible design errors for which in the past a variant project would have been necessary during the realization.

The H-BIM methodology has radically changed the design approach, acquiring in full all the achievements of the third revolution and the digital revolution, giving life to a methodology, a parametric design process in which the original and simple three-dimensional model is enriched semantically by information related to the individual components of the building that contain relevant information. At the same time, they can be replaced or modified on the design basis and are, subsequently, adaptable to the specific case [16].

Looking the conceptual and operational vastness of BIM and H-BIM and the possibility to deepen the contribution of this methodology in all types of design, from the purely architectural to the structural one, from energy to plant engineering, and the possibility of expanding the spectrum of analysis of the design process that has passed the 3D model to reach a design in 7D. This contribution will focus on the use of the H-BIM methodology on the existing building stock and on how parametric modelling and energy simulation have allowed to define interventions of energy efficiency and rehabilitation of the built heritage.

The application of the BIM methodology to existing built heritage, known as H-BIM has greatly extended the potential of this approach to the design of rehabilitation/redevelopment/restoration both in terms of forecasting and management over time of the done intervention.

This methodology, which focuses on three-dimensional parametric modelling, applicable to both small-scale residential buildings and monumental buildings, has modified the intrinsic conception of the creation of three-dimensional models of the built, aimed at a mere digital return for purposes originally purely architectural

and/or aesthetic, to go instead in the direction of generating intelligent models. Through those intelligent models is possible to characterize every single component of the architectural artefact in its material aspects, construction and performance thus generating realistic models of a building that allow to design a detail intervention thorough the complete knowledge of the outcome. The H-BIM methodology, therefore, allows to design on the existing heritage starting from a simulation of the constructed one.

Focusing on projects of energy efficiency improvement, this takes the form of an energy simulation that allows to define the behaviour of the artefact before doing the intervention itself. That makes it easier, fast and effective a sustainable design in order to optimize the overall energy efficiency through the choice of specific interventions related to the site, the building orientation, building and constructive materials, along with the inner housing standard of comfort. Within this reasoning design/process, a crucial phase is the energy simulation of the building and, more generally, with the definition of the redevelopment of the existing heritage is represented by the geometric-dimensional and material-constructive of the building object of the interventions. This phase allows to build, using specific software, a digital model of the existing building through which determining its initial thermal behaviour and simulate its future behaviour by applying the design choices identified and based on the knowledge process that has been previously developed [17]. This process, that allows to design the existing to rehabilitate it, has in its tools the activity of reverse or back engineering [18]. This activity represents the action that, starting from the data obtained with appropriate and modern techniques of importance of the existing building, allows the subsequent "digital reconstruction" integrated and amplified by a whole series of information necessary to proceed with the energy simulation of the model and, consequently, with the design of the full interventions.

Based on the type of building on which the energy efficiency must be carried out and, more generally, to manage a full rehabilitation project, it is possible to apply distinct techniques of importance ranging from traditional to more technologically advanced.

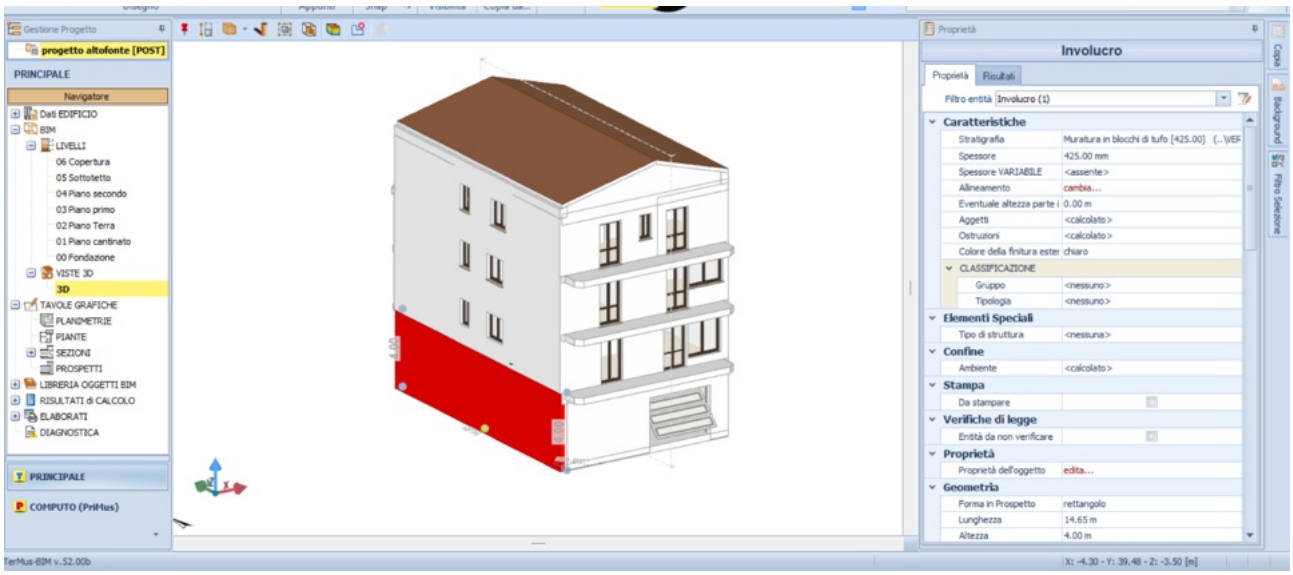

Figure 3. *Interface of the Termus-Bim software Used for the three-dimensional parametric modelling of a building on which to perform energy efficiency interventions.*

3. CASE STUDY ON H-BIM METHODOLOGY: ENERGY IMPROVEMENT DESIGN OF A TRADITIONAL BUILDING

The buildings, built during the 1960s and 1980s, usually are inline-buildings intended for residential use mainly with a supporting structure consisting of a framed-in reinforced concrete; the walls are usually made of bricks or limestone blocks. Usually, such structures do not present complexity in the designs of the outer shell or particular constructive solutions that require the use of high-tech technologies. As an example, and to facilitate the understanding of this consideration, in the following sections, an energy simulation of a housing building in the town of Altofonte, in the province of Palermo, is reported. For such building, the phase of relief was realized through the aid of traditional techniques that allowed the realization of a parametric three-dimensional model through which the necessary requalification participations are defined in order to increase the efficiency energy of the entire building.

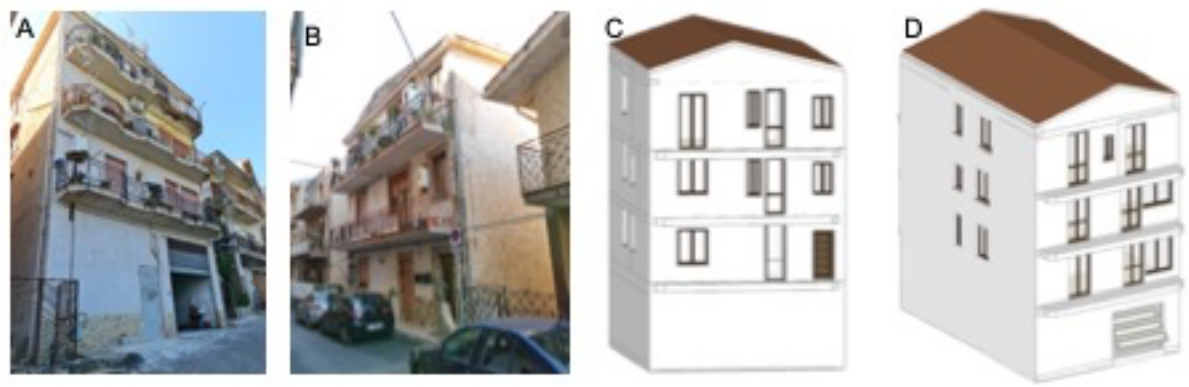

Figure 4. *A-B: Pictures of the building in Altofonte subject of the H-BIM methodology application; C-D: Digital reconstruction of the building on H-BIM platform. For the purposes of the realization of the parametric virtual model, the relevant phase and in-depth knowledge of the entire building.*

From pictures 4A, the building, which was the object of energy simulation and then of subsequent design projects, is a canonical example of a residential building. Its ground floor used is used as a garage/storage built in the 1970s, without of any real architectural value. It reflects the widespread building typologies generally built both in Sicily and on a national scale. However, It is part of the built heritage on which it is necessary to intervene in order to fully respond to the European and national regulatory requirements in energy efficiency materials and technologies.

From a methodological point of view, the first phase of the process was to survey both the exterior of the building and the interior to acquire the level of knowledge needed about all the components and technological elements that make up the building and, more generally, all useful information to be able to apply the methodology of reverse engineering and build the three-dimensional parametric model. For the next phase of the digital reconstruction of the artefact, the software used was Termus-Bim by ACCA software through which it was possible to build a virtual model that reflected, as closely as possible, all the detected characteristics of

the building in order to evaluate the initial energy efficiency and, subsequently, define the design interventions aimed at increasing the energy capacities through different design focuses.

The use of reverse engineering applied to built heritage with the help of traditional metric and material survey techniques has revealed how it is possible to generate a three-dimensional parametric model full of information on the characteristic constructive features and the performance of any individual technological elements, the individual parts that make up the building and that contribute to the energy performance of the shell.

Going into more detail and explaining the sequence of the project focus, once the H-BIM model was established, the first analysis was bio-environmental and territorial. Specifically at this stage, a focus was made on the site where the building is located in order to enhance its nature and study aspects such as ventilation, natural lighting, the relationship with the surrounding buildings, solar radiation or even the average temperature during the year related to the so-called "climate zone" of the municipality of reference. That is an essential factor and related to the reference standards for transmittance of the perimeter walls, of the windows or the roof of the building. This analysis and phase of parametric modelling was coupled together with an in-depth analysis of the safety aspects on site and the assembly of the provisional works necessary to be able to materially realize the work of energy efficiency.

This further study has allowed to obtain a correct management of the design process also with regard to the accounting of security charges and compliance with the dictates of D.lgs. 81/08 on which is based almost all of the Italian legislation on safety on construction sites.

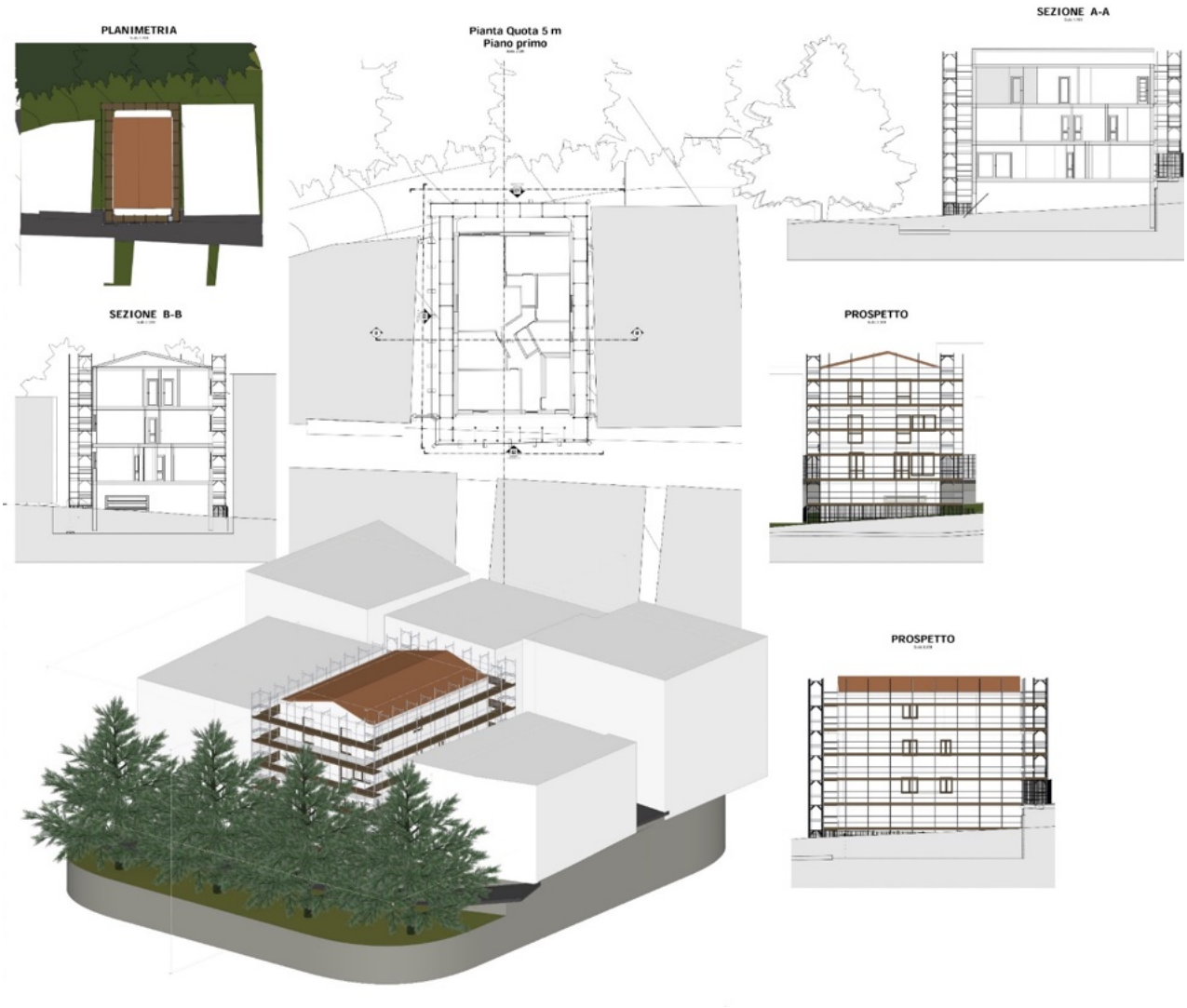

Figure 5. *Bio-territorial analysis of the building by understanding the relationship with the buildings and the place itself with all its intrinsic characteristics. At the same time, a three-dimensional model of the provisional safety work was built in order to manage this aspect in a forward-looking manner.*

This first phase of bioclimatic deepening, accompanied also by a parametric and specific design of the aspects related to safety on the construction site that fully falls within phase 5D of the H-BIM methodology or that of the management of the costs of construction/intervention, has addressed and channeled all the other project focus. The analysis of the building envelope and of all the building's leaking surfaces and the energy simulation of the project status have made it possible to identify the necessary interventions to really improve the energy efficiency of the building and correctly responding to regulatory requirements, the requirements of the law on thermal transmittance of wall faces, roofing, fixtures, or the heating/cooling system and the resolution of thermal bridges that could generate critical post-intervention issues. As regards the building envelope and the analysis of the state of the vehicle surface, through an accurate phase of survey it was possible to attribute to the three-dimensional parametric model the characteristics of the individual elements and the general layers of the building and, then, define the energy assessment of the state of maintenance before doing any intervention on the building. As regards the building envelope and the analysis of the state of the exterior surface, through

the accurate phase of survey it was possible to attribute to the three-dimensional parametric model the characteristics of the individual elements and the general layers of the building and then define the energy assessment of the state of art before designing the intervention on the building.

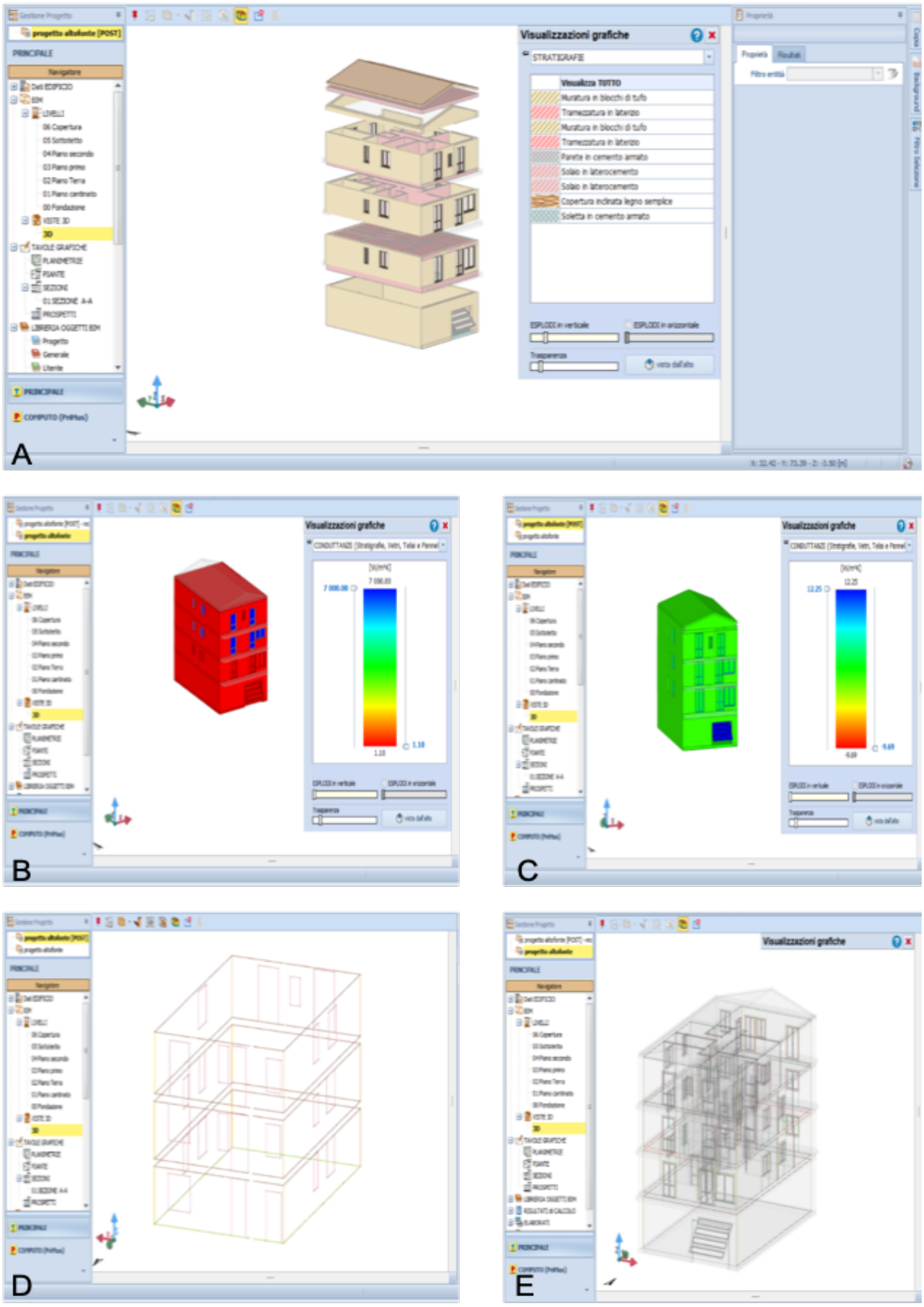

Figure 6. *Termus-Bim software graphical extrapolation of the project. A- building layers; Verification of the external envelope conducts ante-intervention (B) and post intervention forecast (C); verification of the existence of thermal bridges (D) and their physical location (E) calculated by means of the software based on the parameterization of individual components.*

Figure 7. *The rooftop structure before the intervention where it is possible to find the total absence of thermal devices as well as an under-sized structural elements; complete reconstruction of the new glulam beams, layer of insulation in monolithic rock wool panels and special integrated strip to allow the placement of the new tiles and central elements for the support of the ventilated ridge.*

Always about the behaviour of the building envelope, further design focuses preliminary to the phases of executive design and execution of the work were those related to the conductance before intervention and then post simulation of the intervention, coupled to a specific analysis on thermal bridges in order to evaluate also the correct type of new windows to be installed.

These types of analysis carried out by means of energy simulation of the actual state to evaluate the building energetically. These analyses have been done, for instance, by verifying the thermal conductance of the calcarenite wall faces that showed a value of Ui equal to 1.42 W/m^{2}K, the transmittance of the roof, consisting of simple wooden beams catagenic planks discontinuous wood on which were bolted marseille tiles, showing a value of Ui of 3.192 W/m^{2}K, or still identify the thermal bridges, the transmittance values of the windows and the efficiency of the cooling/heating modes. The set of these analyses that are part of the energy simulation of the state of fact have allowed both to classify energetically the building in compliance with the performance indices present within the D.M. 26 June 2015 taking into account, among many factors, especially the non-renewable energy performance index (Epgl, nren) which represents the energy needed, consumed and absorbed by the building to produce the conditions of inner living comfort, and to guide the subsequent design choices to allow the building to improve its energy performance in compliance with national and Community regulations and requirements.

In order to improve the energy efficiency of the entire building, the main type of intervention was aimed at improving the performance of all the dispersant surfaces starting from the roof. For the latter during the design phase using the Termus Bim software, in order to comply with the minimum transmission requirements laid down by the regulations, it became necessary to modify the stratigraphy of the roof by means of a continuous wooden plank layer, a vapour barrier and a thermo-acoustic insulation layer in the form of panels having a thickness of 8 cm and a U-conductance of 0.28 W/m^{2}K and also supporting the water-tight layer in Marseille tiles. This type of intervention, completed by the installation of a ventilated ridge that has further amplified the thermal insulation capacity of the roof, has meant that the new value of conductance U was equal to 0.25 W/m^{2}K and therefore perfectly compliant with the reference standards regarding the U values of the roofs of the buildings within the climate zone C to which the town of Altofonte belongs.

Concerning the perimeter walls, during the tridimensional modeling phase came out as the only intervention able to allow an overall energy efficiency in compliance with the regulations in force in the national territory for this type of intervention was the insertion of a type insulation "coat" throughout the development of such masonry fixtures.

Specifically, the energy simulation phase of the state of fact allowed to understand how the transmittance of the perimeter walls was equal to 1.62 W/m^{2}K and how there were several thermal bridges both at the windows and in the corners of the building where the calcarenite constituting the walls was interrupted by slabs and pillars in reinforced concrete.

Starting from these critical points, it was possible, through the parametric three-dimensional model, to size and calibrate the project that involved three interventions:

Isolation of vertical perimeter walls by insertion of 10 cm rock wool panels;

Insulation of the first-floor separation floor with storage/garage;

Replacement of the windows with new fixtures that meet both the values dictated by the regulations on transmittance and the resolution of thermal bridges as the insertion of the insulation of the perimeter walls.

Figure 8. *2D Constructive details of the operating methodology of positioning the external thermal insulation along the vertical perimeter walls between the floors' slab and corresponding to the points where the new fixtures were inserted.*

These interventions, schematically summarized also through special construction details in 2D have changed the appearance of the building, and have radically changed the thermal behaviour of the perimeter walls leading to a transmittance of 0.22 W/m^{2}K. The intervention was also accompanied by the replacement of old boilers and heating elements, too obsolete, and the replacement of heat pumps with new equipment able to reduce the energy consumption, that can be controlled remotely and successfully dialogue with further interventions in the field of home automation aimed at the automatic management of housing comfort and energy consumption.

Figure 9. *Images of the building in the final phase of the works planned using the H-BIM methodology*

Another aspect previously described, and which has strongly influenced the design choices, was the bio-focus from which it emerged that it was not convenient to install the photovoltaic panels in coverage given the very close presence of a rocky wall and other buildings with an additional elevation that would not allow the proper and appropriate operation of the plant to justify significant expenditure.

All the interventions described above have been designed and managed during the execution using the H-BIM that has made the entire project process much more precise both in the forecasting phase and in the execution and accounting phase of the work, allowing in a certain way to comply with national and Community regulations on energy efficiency and saving of the entire building. With regard to that, and in a synthetic but explanatory way, all the interventions put in place have allowed to increase skip 3 energy classes for a total saving of primary energy (Epgl, nren) of 55% compared to the condition before the intervention

4. CONCLUSION

The H-BIM methodology and its application have for several years up to now generated large and significant changes in the definition of energy policies as well as the generation of renewed regulatory equipment that place their centrality on a concrete goal: encourage the energy transition of the built heritage through interventions that are part of a wider process in which the use of new technologies can facilitate the management and planning of all individual project actions.

The dissemination of an integrated and interactive design language common to all latitudes of the world and in all contexts, continues to produce important changes also in the educational, and applied research sectors. In this contest the methodology of BIM and H-BIM testify to the important and relevant steps forward made in the

field of technology applied to the management of the building process and testifies even more in the processes of rehabilitation of the built heritage especially in contexts such as the Sicilian and Italian tends increasingly to reduce land consumption and recover existing built heritage. In such contexts the planning through three-dimensional parametric modelling concurs to give life to participations easier to manage especially during the execution of the intense activities and concurs to have also greater easiness in the maintenance in the course of the time of the good where they have acquired a deep level of knowledge. A methodology therefore that one of BIM and H-BIM that has strongly changed the input and design language, which has greatly facilitated the management of the entire process and that, especially within the sector of the efficiency of the built heritage, represents without a doubt the instrument that will accompany the entire supply chain in achieving the objectives set by the Agenda 2030 and the European Green Deal and Blue Economy.

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LANGUAGE OF MOSQUE - CATHEDRAL OF CÓRDOBA IN THE CONTEXT OF ADRIAN FORTY'S WORDS AND BUILDINGS

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ABSTRACT

Language is a complex whole that presents very different aspects but includes aspects that can be handled separately with a work of abstraction. Language reality, which is universal in some respects and specific in some respects depending on certain conditions, can be examined in different ways according to viewpoints and examination methods.

While language affects the discipline of architecture, it also plays a role in understanding architecture. When architectural designs emerge, those who see it interpret the designs using words. The unity of architecture and language affects each other because of these representations.

Adrian Forty's book Words and Buildings examines the oral discourse of architecture and the ways in which architecture communicates through language. It tries to explain its historical process by conveying the change of the basic concepts of architecture with modernism with the views of different thinkers.

The method of the research in this paper, which aims to re-read a building through the book of Adrian Forty, which looks at the verbal discourse of architecture and the ways in which architecture communicates through language, consists of two stages. These stages are the steps in the conduct of the research. As a first step, all the words discussed in the book Words and Buildings were researched. In the second stage, the re-reading of the structure was carried out through the selected word. The building chosen as the material of the paper is The Córdoba Mosque - Cathedral, which is important in the cultural context and is on the World Heritage list by UNESCO. With this paper, an analysis of the architectural language of The Córdoba Mosque - Cathedral was carried out.

KEYWORDS: Architecture, Adrian Forty, order, rereading, Córdoba Mosque - Cathedral

INTRODUCTION

Language is a complex whole that presents many different aspects but includes aspects that can be handled separately with abstraction. Language reality, which is universal in some respects and specific in some respects depending on certain conditions, can be examined in different ways according to viewpoints and examination methods (Vardar, 2001: 11). Each language is shaped within a certain society, within the framework of its own affix and civilization. And it fulfills its function within such a framework. Therefore, it can be said that each language reflects a certain society (Vardar, 2001: 16).

While language affects the discipline of architecture, it also becomes a connection point in understanding architecture (Yazıcı, 2019). Architecture is a physical representation of ideas created using drawings, visuals and models. And at the same time, it is seen as a communication language that works with concepts and symbols (Erarslan, 2014). After the architectural designs are revealed; designs are interpreted using words (Jencks, 1970). The unity of architecture and language affects each other because of these representations.

In his book, Words and Buildings, written by Adrian Forty (2000), he examines the oral discourse of architecture and the ways in which architecture communicates through language. In addition, Forty conveys the change of the basic words that make up architecture with modernism. In the book, he presents the historical dimension and interactions of the words by supporting the words with the views of different thinkers.

The material of the paper is The Córdoba Mosque - Cathedral, which is culturally important and is on the World Heritage list by UNESCO. In the context of the relationship that architecture creates with language, the aim of this paper is to read a structure through Adrian Forty's book Words and Buildings and a word. Thus, an interpretation of the architectural language of The Córdoba Mosque - Cathedral is presented.

THE LINGUISTICS DIMENSION OF ARCHITECTURE

Architecture produces representation, and what it produces encounters people and is interpreted by people (Söhmen, 2011; Eren, 2020). Because of the representations of architecture, similarities have been established between architecture and language (Söhmen, 2011).

Linguistics started to bring up concepts such as message, language, expression, and representation in architecture after the 1960s (Yazıcı, 2019). When the relationship between architecture and linguistics is examined through literary products, it is understood that both architecture and linguistics disciplines consist of a sign system (Yazıcı, 2019).

Language provides a framework for subjective perception and expression of objective reality. In addition, it offers a kind of intellectual structure (Vardar, 1998). In this context, it can be said that language has both a reflective and a creative function. With this aspect, it not only indicates what people see, hear, feel, observe, and think, but also makes reality take on a unique appearance. In this respect, it is seen as a method of interpreting the outside world (Söhmen, 2011).

While tracing the changing meaning of keywords in architectural modernism, Adrian Forty (2000) argues that language is not only a complement to the reality of buildings, but also plays an active role in structuring our experience with words. Foucault (1971) and White (1978) point out that there is no pre-linguistic moment for our understanding of buildings, just as we understand other aspects of the world. This relationship has evolved over time to mean that architecture can also be read as a language (Kalfaoğlu Hatipoğlu and Koç Aytekin, 2020). In this context, conceptual language and morphological language have come to the fore as architectural language.

While the conceptual language of architecture includes the concepts of form, function, tectonic, scale, proportion, symmetry, rhythm, etc., the morphological language of architecture appears to be the language of architectural shapes, a special artistic language that allows to embody the idea and artistic intention in architectural composition. There is an indissoluble bond between them (Kalfaoğlu Hatipoğlu and Koç Aytekin, 2020).

Architecture is a discourse that contains symbolic references, and there is no mention of architecture where there is no symbol. In this context, the multi-layered relationship between concepts and symbols and forms becomes the tools of architecture. Architecture can be understood through the language that besides the disciplined attitude of the architectural object, it is also easily displaced and even subject to wider masses. Therefore, language and architecture are seen as important building blocks that feed off each other in architectural theory.

MATERIALS AND METHOD

This paper aims to reread a building through the book of Adrian Forty (2000), which looks at the verbal discourse of architecture and the ways in which architecture communicates through language. In the paper, the architectural language of The Córdoba Mosque - Cathedral, which is culturally important and on the UNESCO World Heritage list, has been analyzed.

This paper takes its research method from Adrian Forty's book Words and Buildings, a pioneering study of architectural discourse vocabulary discussed in historical terms.

In his book Words and Buildings, Adrian Forty has approached this issue critically by reflecting on the limits of language, the non-naturalistic nature of linguistic representation, and the social practices of the evolution of architectural language (URL-1, 2023). The book Words and Buildings delves into the relationship between architecture and the words we use to talk about it.

The method of the research consists of two steps (Table 1). These steps are also the steps in the conduct of the research. As a first step, all the words discussed in the book Words and Buildings were researched. In the second step, the re-reading of the structure was carried out through the word 'order'.

METHOD OF RESEARCH		
STEPS	**STEP 1: TOOL**	**STEP 2: REREADING**
	Andry Forty's book 'Words And Buildings'	**The Córdoba Mosque - Cathedral**
	Words in the book and choosing the word 'order'	**Examination of the building through the word 'order'**
	character context design flexibility form formal function history memory nature **order** simple space structure transparency truth type user	**According to the book, principles to understanding 'order' in architecture:** **1.** The attainment of beauty, through the relationship of parts to the whole **2.** As a representation of the ranks (orders) of society. **3.** The avoidance of chaos, through the use of architecture as a model, or instrument, of social order. **4.** Counteracting the disorder of cities.

Table 1. method of research

DATA ANALYSIS: 'WORDS AND BUILDINGS'

In the paper, 18 words used in architecture were examined in Forty's book Words and Buildings: 'character, context, design, flexibility, form, formal, function, history, memory, nature, order, simple, space, structure, transparency, truth, type, and user'. In the book Forty (2000) has written a very comprehensive chapter for each word. In data analysis, these 18 words chapters in the book were examined and a table was created for these 18 words (Table 2). When Table 2 is examined, all the words in the table are associated with the word 'architecture'. This situation reveals that the words in the book are the words used to talk about architecture.

THE NAMES OF PARTS IN THE BOOK WORDS AND BUILDINGS					
CHARACTER		**CONTEXT**		**DESIGN**	
Related Words		**Related Words**		**Related Words**	
architecture building architectural gothic place architect form modernist artist builders	construction characteristic space stones cathedral contemporary drawing city sculpture	architecture city design modernist architectural contextualism architects building contextual environment location	concrete cultural modernism monuments postmodernist architettura built formalism geometric historic monumental	architecture architects architectural form building composition education drawing material concept	modernism structure consumer gothic capitalism humanism monuments vitruvius
FLEXIBILITY		**FORM**		**FORMAL**	
Related Words		**Related Words**		**Related Words**	
buildings architecture architectural architect design roof walls functional	traditional structure urban baroque character contemporary monuments restore	architecture architectural concept architect space culture building renaissance arts modernism	city functionalism archetypal bauhaus character geometric constructivism urbanization	architecture form modern architectural corbusier architect architectonic character city critic	criticism design drawing emphasis formalism gehry historicism movement museum theories
FUNCTION		**HISTORY**		**MEMORY**	
Related Words		**Related Words**		**Related Words**	
architecture form building	functionalist structure modernity	architecture historical architects	historicism urban form	architecture city buildings	architects form modernism

functionalism	built	modernism	memory	historical	memorial
architectural	conception	architectural	museum	modernist	context
architects	context	modern	buildings	architectural	build
modernism		knowledge		social	civilization
historical		city		material	

Table 2. Words associated with words in the book Words and Buildings

NATURE		**ORDER**		**SIMPLE**	
Related Words		**Related Words**		**Related Words**	
architecture	order	architecture	society	architecture	history
art	space	social	beauty	building	meaning
architectural	built	city	urban	architect	architectural
architect	expression	architects	idea	modernist	historical
human	history	architectural	mathematical	design	modern
building	modern	building	built	modernism	monumental
material	tradition	modern	modernism	complexity	ornament
SPACE		**STRUCTURE**		**TRANSPARENCY**	
Related Words		**Related Words**		**Related Words**	
architecture	buildings	architecture	structural	glass	aesthetic
architectural	material	building	form	wall	transparence
architects	place	construction	linguistic	architecture	window
spatial	theory	architects	function	building	construction
modern	philosophical	architectural	social	spatial	postmodernism
social		buildings	modern	architectural	architect
		space	structuralism	phenomenal	architectonic
				modernism	
TRUTH		**TYPE**		**USER**	
Related Words		**Related Words**		**Related Words**	
architecture	beauty	architecture	urban	architects	characteristic
architectural	construction	architectural	form	architecture	modernist
structural	criticism	theory	history	social	citizens
building	baroque	buildings	historical	space	historical

historical history modern	modernism structure architect	architects building city	morphology context modernism	buildings architect architectural	traditional

Continuation of Table 2

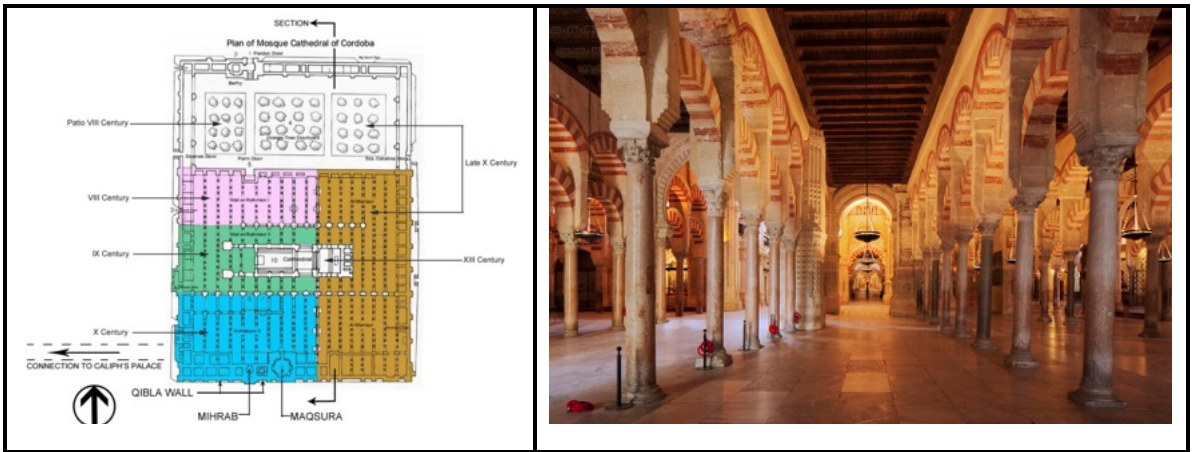
When Table 2 is examined, the word that all the words in the table have a common relationship with is the word 'architecture'. This situation reveals that the words in the book are the words used to talk about architecture. According to Table 2, the word 'order' is closely related to the words 'architecture, social, city, architects, architectural, building, modern, society, beauty, urban, idea, mathematical, built, modernism'. In this paper, the word 'order' became a tool for re-reading The Córdoba Mosque - Cathedral because it is closely related to the words 'social, society, urban, and mathematical'.

RESULTS: THE LANGUAGE OF CÓRDOBA MOSQUE IN THE CONTEXT OF 'ORDER'

This section constitutes the second step of the research method. The reading of The Córdoba Mosque-Cathedral was carried out through word 'order'. There are 4 principles for understanding 'order' in architecture: the attainment of beauty, through the relationship of parts to the whole; as a representation of the ranks (orders) of society; the avoidance of chaos, through the use of architecture as a model, or instrument, of social order; counteracting the disorder of cities (Forty, 2000: 240). In line with each principle, quotations from the book have been selected and selected quotations have been evaluated in the context of the building. Thus, the Córdoba Mosque - Cathedral was reread in line with the principles of 'order'.

The principle of order 'The Attainment Of Beauty, Through The Relationship Of Parts To The Whole' is that

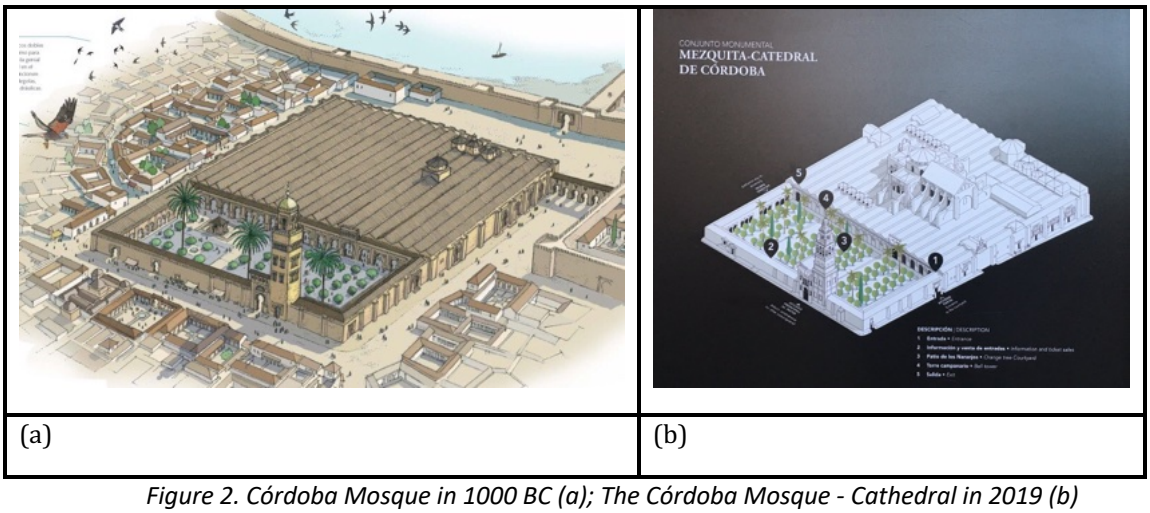
"...gives the original sense of 'order', and this is a meaning that persists to the present day" (Forty, 2000: 240). The Córdoba Mosque - Cathedral was built in four phases between the eighth and the end of the tenth century. In the example of The Córdoba Mosque - Cathedral, it is seen that the proportions and rhythms of the partitions and column spaces are preserved in each intervention (URL-2, 2023) (Figure 1). In the context of this principle, the additions made at different times to The Córdoba Mosque - Cathedral show the existence of the feeling of the original 'order'.



(a) (b)

Figure 1. Floor Plan Showing Construction Stages (a); Column orders in the interior of The Córdoba Mosque - Cathedral (b)

The principle of order 'As A Representation Of The Ranks (Orders) Of Society' emphasizes that architecture both determines and preserves social stratum (Forty, 2000: 241). In the 13th century, when King of Castile, Fernando III conquered Córdoba, blessed the entire building, and a small chapel was created in the middle of the building with little change, and it was used in this way for three hundred years. In the 16th century, although the Bishop of Córdoba suggested that the mosque be demolished and a new cathedral built, opposition from the people of Córdoba led Emperor Charles V to order that the new gothic cathedral be 'placed' in the middle of the mosque. This was unprecedented and structurally challenging. Between the 13th and 16th centuries, parts of the mosque were changed, and renovations were made in order to support new structures. These renovations were made by trying to preserve the ratio, rhythm and size of the existing building (URL-2, 2023) (Figure 2). The fact that Emperor Charles V showed respect to the wishes of the people despite the bishop, and that the people wanted the mosque to continue despite being from another nationality, emphasizes the existence of social order.



(a) (b)

Figure 2. Córdoba Mosque in 1000 BC (a); The Córdoba Mosque - Cathedral in 2019 (b)

The principle of order 'The Avoidance Of Chaos, Through The Use Of Architecture As A Model, Or Instrument, Of Social Order' is to avoid chaos by using architecture as a model or tool of social order. "… 18. From the late 19th century, there was a perceived connection between architectural 'order' and social 'order' - whether in the sense of preserving 'order' or in a more specific sense, naturally existing order" (Forty, 2000: 242). The Córdoba Mosque-Cathedral is a religious building. After the occupations in the city, its religious structure was preserved. Considering the area where the building is located in the context of city planning, can it be said that the area is divided into religious building stock? In other words, in the city of Córdoba, this place was planned as a religious area, and it can be said that the urban order and social order were preserved? (Figure 3).

(a)

(b)

Figure 3. Mihrab at The Mosque of Córdoba (a); Villaviciosa Chapel in The Córdoba Mosque -Cathedral (b)

The principle of order 'Counteracting The Disorder Of Cities' is about a city being orderly, in addition, its buildings, streets and squares should be arranged in such a way that they appear orderly. Since cities have existed, there have been complaints about the disorder of cities. In fact, cities are chaotic in nature, and it is assumed that order must be imposed on them in order to make them suitable for living in them (Forty, 2000: 243). When the context of The Córdoba Mosque - Cathedral is examined, it seems that there are references around the mosque. The Córdoba Mosque - Cathedral's dimensions and proportions of the roof cover are similar to the dimensions of the roofs of the surrounding buildings. At the same time, the material used in The Córdoba Mosque - Cathedral is similar in colour and texture to the surrounding buildings. The Córdoba Mosque-Cathedral is in order with its the surrounding buildings in terms of size, proportion, texture and colour (Figure 4).

Figure 4. The order that the Córdoba Mosque-Cathedral creates in the city in terms of size, proportion, texture, and colour with its surroundings.

DISCUSSION

As long as architecture exhibits 'order', it reproduces more of what already exists everywhere (Forty, 2000). Within this scheme, it can be said that the additions / changes made in the change of Córdoba Mosque-Cathedral from the past to the present were carried out in an 'order'. The transformation of the Córdoba Mosque-Cathedral in different years, the attitudes of the rulers of the city of Córdoba in different years and the people of the city show their interest in the social and religious 'order'. This attitude reveals the harmony in the contexts of architectural practices.

Architecture is a work of creating 'order'. Architecture contributes to city planning through reduced knowledge gained from its surroundings. Although the Córdoba Mosque-Cathedral has undergone social, religious, and cultural changes, it has been part of an 'order' for the city of Córdoba, both in terms of urban planning and architecture.

In this paper, the words in Forty's book Words and Buildings were analyzed and the Córdoba Mosque-Cathedral was reread through 4 different 'order' principles and the building was discussed in the context of social, religious, and architectural 'order'.

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Figure 2 (b). https://twitter.com/Mecra/status/1116431624692957186/photo/2 May 13 2023

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CPUD '23

IX. ONLINE CITY PLANNING AND URBAN DESIGN

CONFERENCE PROCEEDINGS

COUNTERING THE CLIMATE CRISIS' EFFECT ON POPULATION HEALTH THROUGH NATURE-BASED SOLUTIONS

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ABSTRACT

Nowadays, it is evident how climate change has assumed such serious dimensions that we must speak of a real climate crisis that poses multiple threats to human health and well-being. Effects on the environment, such as heat waves, fires, and floods, have unfortunately become part of our daily reality. The urban heat island phenomenon, leading to a worsening quality of life, brings out new needs in cities and entrusts a central role to the experimentation of Nature-Based Solutions (NBSs) in urban planning. High temperatures can cause heat stress, and affect mental health and work performance. This paper illustrates the topic of NBSs as one of the possible adaptation and mitigation actions useful to counter rising temperatures at the urban scale. NBSs are nature-inspired, nature-supported, cost-effective solutions providing environmental, social, and economic benefits. This paper will investigate the main effects of heat on population health and well-being and how these can be counteracted through NBSs.

INTRODUCTION

The Intergovernmental Panel on Climate Change (IPCC, 2007) defines climate change as a change in climate "*attributable directly or indirectly to human activities, such that it alters the composition of the planetary atmosphere and adds to the natural climate variability observed over similar time intervals*". This definition is predominantly shared by the scientific community which believes that climate change is primarily driven by emissions of greenhouse gases into the atmosphere produced by human activities. It shows that human activities have caused global warming of about 1.0°C compared to pre-industrial levels, with a likely range of 0.8 to 1.2°C. Global warming is likely to reach 1.5°C between 2030 and 2052 if it continues to increase at the current rate (Gaglione, 2022).

The main consequences involved in global warming of the planet are three: (i) a rise in global mean temperature; (ii) rise in global mean sea level; and (iii) changes in the frequency and intensity of precipitation. These phenomena are detected in cities in the form of "secondary effects" (e.g. heat waves, heavy rainfall, drought, storm surges, etc.), which have been occurring more frequently and intensely in the last decade.

Reducing the impacts of climate change requires radical social and economic model changes (Estrada et al., 2017), particularly in our cities (Van Leeuwen et al., 2016). The scientific community began to analyze, from an adaptation perspective, the relationships between urban characteristics and climate effects in cities when it was realized that climate change impacts would increase, due to the effects of greenhouse gas emissions (Da Silva et al., 2012).

Research has focused on phenomena occurring in cities in order to respond to the impacts of climate change. Rising temperatures and the frequency of heat waves imply a risk to the health and well-being of citizens, particularly to vulnerable populations (children, the elderly, and people with reduced abilities) (Tomlinson et al., 2011). In addition, the city's physical and functional organization, materials, and population growth indirectly promote the Urban Heat Island (UHI) effect. Climate studies regarding UHIs have shown that urban form, landform, built materials, and human activities have led to an overall increase in average annual temperature. So, addressing the problem of UHIs is an opportunity to improve the livability and usability of our cities.

In urban settings, vegetation helps to reduce temperatures through evapotranspiration, shading, and reduced heat absorption and thus may help to reduce heat-related mortality (Pascal et al., 2021). Parks, trees and green roofs emerge as effective measures to reduce air temperature and improve thermal comfort both outdoors and indoors (European Environment Agency, 2020). The introduction of Nature-Based Solutions (NBSs) in cities produces co-benefits such as urban greenery for heat mitigation, habitat creation, human health, and well-being (Mabon & Shih, 2021). They also conceptually link social, ecological, and economic goals to address urban challenges (Kabisch et al., 2016).

This paper aims to explore, through a literature review, the effects of urban heat islands and heat waves on population health and well-being and how they can be countered with the use of NBSs.

The remaining paper is organized as follows. Section 2 defines Urban Heat Islands, their causes, consequences, and main types. Section 3 discusses the effects of UHIs on the environment, including the effects of heat waves on the physical and psychological health of the population. Section 4 introduces the topic of the benefits that green areas bring to the health and well-being of citizens. Section 5 describes NBSs with some examples of main solutions and their level of acceptance by the population. Section 6 outlines the research conclusions.

URBAN HEAT ISLAND

There is no single definition for Urban Heat Island (UHI) in the literature. National Geographic defines it as a "*city area that is always warmer than the surrounding area*".

Studies have shown that this phenomenon is due to daytime storage and nighttime release of heat, leading to a significant increase in temperature in urban areas (Kolokotroni & Giridharan, 2008; Stone & Rodgers, 2001). By these studies, the morphological characteristics of the city, the geometry and size of the built-up area, and the spatial distribution of human activities and green areas are closely related to urban microclimatic conditions, burdening the effects of solar radiation and exacerbating phenomena such as the UHI. Heat island intensity is measured as the temperature difference between urban and surrounding areas in a given time interval (Gaglione, 2022) (Figure 1).

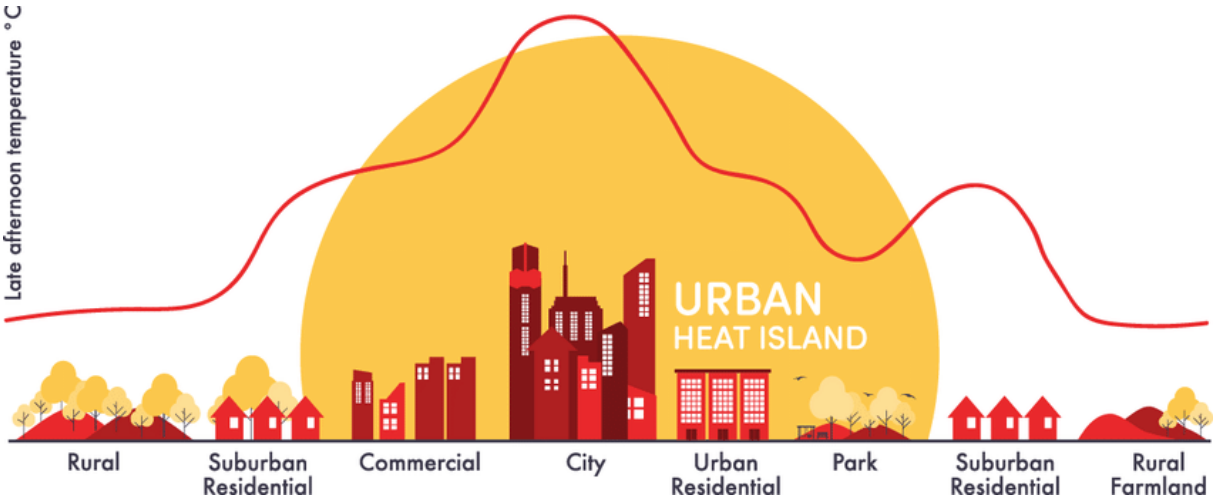

Figure 1. Urban Heat Island [source: World Meteorological Organization]

The first who demonstrate this was the researcher Luke Howard in 1833 in his study *The Climate of London* (Howard, 1833). The name heat island first appeared in literature in 1958 in an article by Gordon Manley in the *Quarterly Journal of the Royal Meteorology Society* (Manley, 1958), although it is plausible that it was coined earlier (Erell et al., 2011).

The UHI effect is proportional to the morphology and geometry of urban areas (Oke, 1987) and has been felt more over time in large metropolises. Since the 1990s, studies have focused on the causes of the phenomenon by trying to understand the relationships between the materials used in the construction of urban fabric (streets, buildings, squares, etc.), urban fabric morphology and urban activities in order to understand the effects they cause on climate. In more detail, the studies identify three types of Urban Heat Islands depending on the measured temperatures in the urban area and surrounding rural areas that result in a change in land use shape and composition.

In detail, UHIs can be classified into three macro categories: (i) Urban Boundary Layer (BLUHI) measures the temperature of the air above the average height of buildings; (ii) Urban Canopy Layer (CLUHI) estimates the temperature of the air from the ground to the maximum height of buildings; and (iii) Surface Urban Heat Island (SUHI) measures the temperature difference between urbanized and rural areas (Figure 2) (Gaglione, 2022).

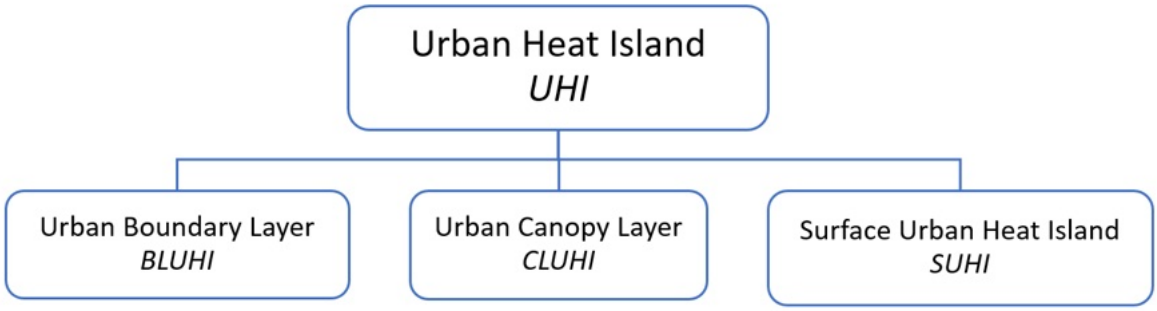

Figure 2: Type of Urban Heat Island

As for BLUHIs, they manifest themselves in urban areas as a "dome "of warm air about a kilometre thick during the day and decrease by several hundred meters during the night. In contrast, the typical average annual alteration of the CLUHI in a large city is 1-3 °C, but under favourable conditions, it can reach an intensity of 12 °C (Oke, 1997). The summer season and the absence of wind and clouds are the conditions defined in the literature as ideal (Oke, 1982), which help maximize the effect during the nighttime period, contrary to SUHI. SUHIs occur when cities are surrounded by wetlands and vegetated areas that are cooler surfaces than urban surfaces (Yow, 2007). Higher surface temperatures are generally observed in cities both during the day and at night; however, the intensity of SUHI is not constant during the day and changes as solar radiation changes: on average it is 10-15 °C during daytime hours, while it takes values of about 5-10 °C during nighttime hours.

The different types of heat islands, although related to each other, differ in origin, measurement techniques and temporal dynamics.

The Urban Boundary Layer (BLUHI) can be measured through a meteorological instrument that can assess the vertical temperature profile at different elevations above ground level using sound waves. Urban Canopy Layers (CLUHI) can be measured by cars or a network of sensors placed in urban areas. Surface UHIs can be measured by both direct and indirect methods: measurement by direct techniques, uses thermocouples or resistance thermometers useful for finding temperature data in limited urban areas, while indirect measurements, for analysis of larger areas, remote sensing techniques that estimate surface temperature through infrared radiation are often used (Gaglione, 2022).

IMPACT ON POPULATIONS

The adverse effects of UHIs result in nighttime temperature levels that are barely tolerable for citizens, showing the highest incidence of deaths precisely in urban settings.

A population's vulnerability to heat-related morbidity and mortality is influenced by individual factors and socioeconomic characteristics. The elderly, children, pregnant women, outdoor workers, people with pre-existing health conditions (such as cardiovascular disease, respiratory disease, diabetes, and mental health disorders), and people who are marginalized or have insufficient economic resources are among the most vulnerable to extreme heat conditions (World Health Organization. Regional Office for Europe, 2021). However, it is not only direct heat that negatively affects residents' health. In anticyclonic weather conditions and excessive heat, higher levels of pollutants such as ozone and particulate matter are generated, which can cause inflammation of the respiratory tract. High temperatures can cause heat stress, which increases the risk of death from heat exhaustion and heat stroke. In addition, the indirect impacts of heat on the cardiovascular and respiratory systems and the exacerbation of existing health conditions due to heat are other causes of increased mortality during the hot season (World Health Organization. Regional Office for Europe, 2021). High temperatures and heat waves are associated with mood and behavioural disorders, including increased aggressive behaviour and crime. In addition, heat is associated with psychological distress, worsening mental health, increased psychiatric hospitalizations, higher suicide rates, and higher mortality rates.

Southern Europe consistently emerges as the region with the highest and fastest increasing risk of high temperatures to human health (European Environment Agency, 2021). The increasing number of people over the age of 65 in Europe, combined with higher summer temperatures, has led to a substantial increase in the overall exposure of the elderly to heat waves since 1980 (European Climate and Health Observatory, 2021). Given the paucity of consistently recorded mortality data during heat waves, modelling of weekly data suggests an increase in mortality due to heat waves between 2000 and 2020 in 94% of the 990 European regions assessed (Figure 3).

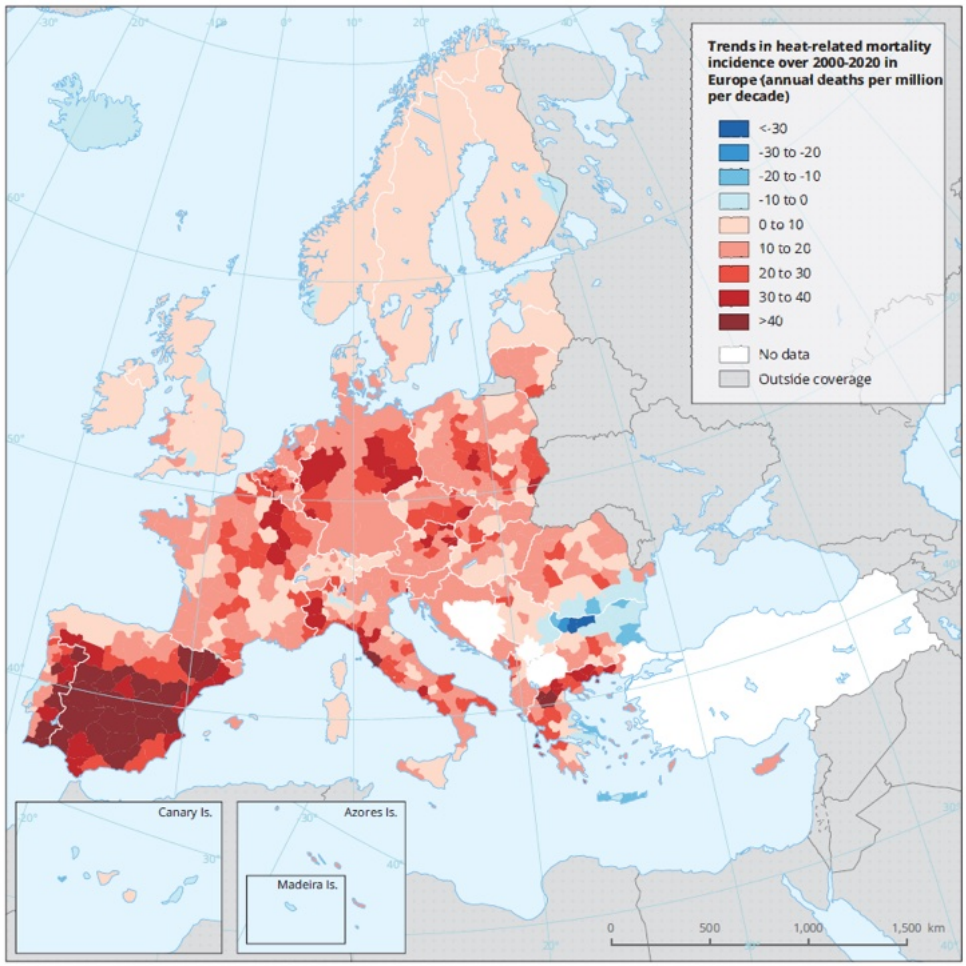

Figure 3: Trends in heat-related mortality incidence over 2000-2020 in Europe [source: van Daalen et al., 2022]

Population vulnerability, in addition to the aforementioned impacts on physical and psychological health, also refers to socioeconomic characteristics. In particular, the quality of the built environment, which substantially affects indoor thermal comfort, tends to be lower among lower socioeconomic groups, who may not even be able to afford mechanical cooling of their homes (European Environment Agency, 2018). As a result, lower-income households are less likely to be able to cool themselves during the summer than more affluent households. This calls for urgent retrofitting interventions targeted at buildings inhabited by low-income people, and also to combat energy poverty.

Among socioeconomic characteristics, the type of work performed is also relevant to the effect of UHIs. People who perform physical labour use protective devices or clothing, work outdoors exposed to the sun, or work in poorly cooled buildings with heat-generating machinery are disproportionately exposed to high temperatures (Pogačar et al., 2018; World Health Organization. Regional Office for Europe, 2021). Low-income workers exposed to heat stress during work also tend to be more exposed on their way to work (e.g., walking or travelling in vehicles without air conditioning), in their homes (due to poor insulation, lack of air conditioning, and inability to afford mechanical cooling), and in their neighbourhoods (e.g., urban areas are highly susceptible to the heat island effect) (Narocki, 2021). In addition, heat stress in the work environment can cause dehydration, which in turn can reduce concentration and reflex speed, increasing the risk of occupational injuries. For office workers, increased temperatures affect cognitive abilities, negatively affecting concentration and decision-making ability.

BENEFITS OF GREEN AREAS

The World Health Organization (WHO) has stated that urban green spaces are a "*necessary component of providing healthy, sustainable and livable conditions*" (World Health Organization. Regional Office for Europe, 2016). Green infrastructure provides multiple benefits for the environment and human health that go beyond climate change mitigation and adaptation. Vegetation helps reduce temperatures through evapotranspiration, increases water retention, filters the air, dampens noise, and improves the mental well-being of urban residents (European Environment Agency, 2019). Increased exposure to green spaces could prevent a large number of premature deaths in European cities (Barboza et al., 2021). WHO recommends that urban residents have access to at least 0.5-1 ha of public green space within 300 m of their homes (World Health Organization. Regional Office for Europe, 2017).

Natural environments and frequent contact with nature have beneficial effects on human health and well-being (James et al., 2015). The physical and mental health benefits associated with interaction with natural and man-made green environments depend primarily on the duration and timing of exposure (Shanahan et al., 2016). Short-term exposure to forests, urban parks, and gardens reduces stress and depressive symptoms, restores attention fatigue, increases positive self-reported emotions, and improves self-esteem, mood, and perceived mental and physical health (Lee et al., 2017). Access to natural environments also tends to increase outdoor physical activity, thereby improving physical health, for example, reducing the prevalence of obesity and type 2 diabetes (Shanahan et al., 2016). Long-term exposure to natural environments, such as residence in high greenness or diverse landscapes, has been associated with reduced mortality from all causes, respiratory, cardiovascular, and cancer, and improved respiratory and mental health (Aerts et al., 2018).

NATURE-BASED SOLUTIONS

As urbanized areas develop, access to natural environments such as green spaces can be reduced. Nature-Based Solutions (NBSs) are a viable alternative to traditional approaches to urban green space. NBSs have been defined by the International Union for Conservation of Nature (IUCN) as "*actions to protect, sustainably manage, and restore natural or modified ecosystems that address societal challenges effectively and adaptively while providing human well-being and biodiversity benefits*" (Cohen-Shacham et al., 2016). They have great potential to improve the biodiversity of urban areas, mitigate climate change, and promote well-being by making cities more livable.

Specifically, NBSs refer to the sustainable management and use of nature to address socio-environmental challenges such as climate change, food security, water risk, water pollution, natural disaster risk management, human health, and social and economic development (Figure 4). A holistic approach to economic, social and environmental issues is adopted for the use of these solutions (Cohen-Shacham et al., 2016).

Figure 4: Socio-environmental challenges of NBSs [source: Cohen-Shacham et al., 2016]

There are different types of Nature-Based Solutions and a distinction can be made based on different criteria, such as engineering solutions and areas of intervention. In this paper, we divide NBSs according to their area of intervention and functions: on buildings, in the urban public environment, and those supporting urban drainage.

Some examples of NBSs on buildings are the implementation of green roofs, green walls and climate facades that help reduce energy consumption, retain rainwater and increase biodiversity. The creation of usable green roofs also has social functions related to the maintenance of the roof itself and opportunities for aggregation.

Several solutions can appear in public urban spaces: the first is the creation of tree-lined rows along streets to increase coolness and shade on pedestrian/cycle paths and in parking areas; another intervention is soil desigillation with the inclusion of greenery or draining pavement to make the soil permeable to decrease surface temperature and contribute to urban drainage. NBSs to support urban drainage can be easily incorporated into public spaces: for example, rain gardens, infiltrating trenches, rain squares, flood basins, and wet gardens.

For each of the mentioned solutions, a summary sheet of functions and benefits has been prepared. As an example, the sheet for green roofs is shown in Figure 5.

Green Roofs

Description:
A green roof is defined as the space on top of a building covered partially or entirely by vegetation. Green roofs are an integrated and complex system of functional layers that serve multiple purposes such as recreating suitable habitats for the growth of natural species, in urban settings, rainwater retention, and biodiversity.

Contributes to	Adaptation ✓	Mitigation ✓
Intervention type	Building ✓	Public and urban spaces

Solutions and Benefits

- Reduce run-off.
- Remove pollutants.
- Reduce flood peaks in receiving bodies.
- Increase biodiversity.
- Reduce heat island effect.
- Increase urban permeability.

Figure 5: Features of Green Roofs

Nature-Based Solutions provide environmental, social and economic benefits. From the environmental point of view, green and blue areas can be excellent mitigating and adapting factors to climate change, capable of containing high temperatures in cities, during the summer period. In addition, vegetation contributes to improving air quality in urban areas by removing pollutants and helping preserve and increase biodiversity. Finally, NBSs that contribute to urban drainage can make areas of the city permeable, reducing problems caused by extreme rainfall events. The presence of urban parks generates interaction and integration among citizens, characterized, for example, by people of different age groups or ethnicities. In addition, as mentioned earlier, contact with nature brings physical and psychological benefits: the presence of green areas leads to a higher level of mental rest and lower levels of stress and anxiety, and this leads to a longer life span (Kabisch et al., 2017). Finally, the design and implementation of a green area within the urban perimeter generate several cash flows between investors, tourists, and creation of new charges and jobs (Song et al., 2019).

Nature-Based Solutions must be seen as an opportunity to transform existing rigid urban infrastructure into climate-adaptive urban systems, and we argue that the justice dimension of urban climate adaptation through NBSs, here in "just NBSs," must be prioritized (Yazar & York, 2023).

By applying NBSs where they are most needed and/or expected to benefit most, such as in low-income neighbourhoods, the spatial distribution of activities within a city can also become more equitable. In this way, they will contribute to Environmental Justice (EJ) or, more precisely, to the distributive justice dimension of EJ (Snep et al., 2023). In addition to this distributive dimension, two other dimensions are usually distinguished: a procedural and a recognition dimension. Procedural justice refers to participatory and inclusive decision-making processes and is related to transparent and meaningful citizen involvement (Schlosberg, 2013). Interpersonal justice allows people to express themselves in their way, the provision of and access to information, and respect diverse needs, values, preferences, and identities (Langemeyer & Connolly, 2020). During the process of developing and implementing an NBS, it is important to consider these two dimensions as they are likely to contribute to the successful implementation of NBSs. This is especially important when residents' appreciation and use of NBSs are essential to achieving their full benefits (Frantzeskaki, 2019).

Studies show that experiences of care, connection, and belonging are intensified when people from diverse cultural backgrounds work together on greening projects (Kingsley et al., 2021). NBS can prioritize design needs, but can also support participatory action and planning (Kotsila et al., 2021).

Co-design with stakeholders is necessary to overcome the significant and multifaceted institutional barriers encountered during NBS implementation (Dhakal & Chevalier, 2017). This supports the multidisciplinary nature of the assessment and could successfully inform the optimal design of future urban areas by integrating social, environmental, and economic benefits.

CONCLUSIONS

The October 2018 IPCC (IPCC, 2018) report on climate change highlighted the 1.5°C increase in the planet's temperature. Climate change is transforming the space in which we live: heat waves in cities, rising snowlines in mountains, and increasingly frequent extreme events damaging infrastructure and settlements. Periods of heatwaves are getting longer and more frequent, especially in cities and agglomerations. The densification of built-up areas, the high percentage of sealed surfaces and the lack of green areas increasingly turn cities and agglomerations into heat islands. So, cities represent the places to organize an effective response to combat climate change (Carter et al., 2015).

In this paper, we focused specifically on the phenomenon of urban heat islands. Scientific studies show how UHIs are closely related to the morphology of the urban environment, the material of the built environment, and land uses.

The impact on the physical and mental health of the population is not a factor to be underestimated in combating this phenomenon. High temperatures can cause heat stress, which increases the risk of death from heat exhaustion and heat stroke. In addition, the indirect impacts of heat on the cardiovascular and respiratory systems and the exacerbation of existing health conditions due to heat are other causes of increased mortality during the hot season (World Health Organization. Regional Office for Europe, 2021). High temperatures also affect mental health and can increase the mortality risk of people with mental health problems. Although Europe has been relatively less affected by heat stress in the work environment than other parts of the world, rising temperatures have nevertheless already had negative effects on the European workforce, particularly workers in highly exposed sectors such as agriculture and construction (Van Daalen et al., 2022). Natural environments and green spaces provide ecosystem services that improve human health and well-being. They improve mental health, mitigate allergies, and reduce mortality from all causes, including respiratory, cardiovascular, and cancer. The presence, accessibility, proximity and greenery of green spaces determine the extent of their positive health effects. Planners are integrating Nature-Based Solutions to address contemporary environmental, social, health and economic challenges. Many studies claim that NBSs are poised to improve the health and well-being of citizens in urban areas by contributing to the reduction of environmental effects (such as urban heat islands, flooding, etc.), as well as to the reduction of diseases, such as cardiovascular diseases and overall mortality rates. To raise awareness of existing problems and popularize adaptation measures, it is essential to properly inform politicians, administrators and the public. Adaptation to climate change is a challenge that requires the joint action of different actors and sectoral policies. Spatial planning can play a valuable role in this regard in raising awareness in interdisciplinary and cross-sectoral bodies and policy processes (Gaglione, 2022).

AUTHOR CONTRIBUTIONS

Conceptualization: Stefania Boglietti, Ilaria Fumagalli; Methodology: Stefania Boglietti; Writing - Original draft preparation: Stefania Boglietti; Writing - Review & Editing: Stefania Boglietti, Ilaria Fumagalli; Supervision: Michela Tiboni.

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A TYPOLOGICAL ANALYSIS OF ACTIVE AND PASSIVE STREET INTERFACES BASED ON PERCEIVED SAFETY

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ABSTRACT

The street interface is regarded as a crucial part of social and commercial exchange, as it increases vitality and safety in the city. For this reason, many scholars classified the street interface into various types in order to study them and understand their typology for various purposes. This study aims to classify the street interface into different active and passive types based on the concept of perceived safety. Firstly, a systematic literature review was conducted to categorize the spatial factors that affect perceived safety at the street interface. Then, a diagnostic observation and a spatial analysis were performed to classify the street interfaces into different passive and active types according to these spatial factors. Finally, the appropriate cases from the city of Istanbul were chosen to give examples of the classified types. As a result, the street interfaces were classified into five different passive and active types based on the spatial factors that affect the perceived safety of users. The created typological analysis aims to aid future urban studies to study perceived safety at the street interfaces.

KEYWORDS: Perceived safety, active and passive street interfaces, typological analysis, classification.

INTRODUCTION

The modern urbanization of cities led to the death of public spaces. This directly affected the street interfaces, which are the transition zones between indoor and outdoor spaces. These interfaces became deserted and perceived as unsafe spaces for people to use. Thus, perceived safety at the street interfaces became a recurring issue for designers and urban planners. This study aims to classify street interfaces into different passive and active types to study perceived safety at street interfaces.

The urban theories of perceived safety encourage certain variables such as density of users, mixed-use buildings, human scale, visual, and physical permeability, etc. to help make the street interface active, and consequently perceived safer by its users. However, the passive street interfaces are also important for the city as they have a meaning, and a message (Whyte, 1988). These interfaces are more flexible, and express a sense of place, and social and cultural meaning for their users (Miza Moreau, 2020). Further research is needed to investigate how the spatial variables that influence the activeness and passiveness of the street interface affect users' perceived safety. Therefore, this study classified street interfaces into different passive and active types. Case study areas from the city of Istanbul were chosen to support and further demonstrate this classification. Ultimately, this classification aims to aid urban designers in studying the effect of passive and active street interfaces on users' perceived safety.

LITERATURE REVIEW

The declined levels of perceived safety directly influence the quality of urban spaces. For this reason, urban designers adopted many strategies and theories to design a safe urban environment where people can feel safe using the space, increasing its quality and liveliness. The factors or theories that affect perceived safety can be divided into two parts: environmental based theories and individual-based theories. The environmental-based theories are the parts that concern urban planners or designers. They are defined as the objective or static factors that affect perceived safety.

One of the major theories that relate environmental factors to perceived safety and crime occurrence is the theory of eyes on the street, developed by Jane Jacobs (1961). It suggests that the more people on the streets, the safer it become. Her theory is supported by four key urban design techniques which are density of users, mixed-use buildings, diversity of users and buildings, and short blocks. These techniques are believed to increase the perceived safety levels in urban spaces. Many researchers supported her theory and confirmed that density and the presence of people do have a positive effect on perceived safety (Vrji & Winkel, 1991; Goffman, 1971; Yunmi & Gracia, 2019). Other scholars, however, found a negative effect of density on perceived safety. Jacob's theory of eyes on the street is not valid when the density of people exceeds a certain threshold. High levels of density don't have a positive effect on perceived safety (Tchinda & Kim, 2020).

The routine activity theory states that for urban spaces to be safe, they should be designed to accommodate regularly occurring activities such as walking, commuting, and shopping. These activities should be carried out in a manner that is convenient and accessible to the residents. Therefore, urban spaces must provide diverse and prolonged activities in the space, to add various layers of formal and informal surveillance to the urban environment making it safe (Cohen & Felson, 1979). A study has shown that urban design interventions that were based on the routine activity theory such as strengthening the urban functions, significantly improved the users' safety perceptions of the area (Jiang et al., 2018).

Another theory that aims to relate the physical design of the urban environment to perceived safety is the defensible space theory, developed by Newman (1972). Newman's main key concepts that support his theory are territoriality, surveillance, and image. His theory encouraged the spatial hierarchy of spaces

from private to semi-private and then to the public. The spaces between the public and private allow the residents to provide natural surveillance over the public space, which creates a safer urban environment for people to use. Therefore, the presence of these in between spaces or setbacks provides natural surveillance for the public areas, making the street safe for users. Setbacks can be divided into three types: no setback/direct, pedestrian setback, and car setback (Dovey & Wood, 2015).

Both Newman's (1972) theory and Jacob's (1961) theory stress the significant role of surveillance and low-rise human-scaled buildings in influencing the quality of safety in urban spaces. Many theorists such as, Gehl (2011) also stressed the need for low-rise buildings that should be in proportion with the human scale. He argued that the large scaled buildings decrease safety in the urban space because they diminish its quality and create a feeling of discomfort, leading people to abandon the space and turn it into an unsafe area. Since the height of the building is decided by how many floors it has, Gehl (2010) concluded that the fifth floor is the maximum height for people to feel engaged and intimate with their surroundings. According to Alexander et al. (1977), the street width should not be more than the building's height for it to be perceived as safe for users. The ratio between building height and street width is defined as the enclosure ratio of the street. This ratio should be 1:1 or 1:2 for it to be perceived as safe and comfortable for users (Carmona et al., 2003). According to Gehl (2010), car dependency is another significant factor that influences perceived safety at street interfaces. A blank passive wall is mainly formed because of the presence of car roads. The edges of these car roads create lost space that kills the urban environment as Alexander et al. (1977) stated, turning it into an unsafe area.

The prospect and refuge theory developed by Appleton (1984), is another theory relating the design of the physical urban environment to perceived safety. In his theory, he argues that people prefer urban environments that offer them both prospect (open view) and refuge (protection). These two concepts are considered the most important indicators of perceived safety. Appleton's (1984) prospect and refuge theory, Jacob's (1961) eyes on the street, and Newman's (1972) defensible space theory, all emphasized the importance of physical and visual permeability for perceived safety. Physical and visual permeability are stated to be the most important concepts of the permeability theory that influence perceived safety (Stamps, 2012). A study revealed that the high level of enclosure and physical boundaries implies the feeling of threat and danger from a possible offender. Therefore, poor levels of physical permeability create a sense of fear among people, decreasing perceived safety (Fisher & Nasar, 1992). Gehl et al. (2006) defined various typologies of street interfaces in relation to their physical features. He noted that 15 – 20 doors per 100m is the most active type of street interface which is considered permeable and safe, whereas, 0 – 2 doors per 100m is the most passive type of street interface which is considered impermeable, and unsafe. As for visual permeability, a study showed that the presence of a building blocking the view or the lack of an open view results in low levels of perceived safety in the space (Vrji & Winkel, 1991). Alexander et al. (1977) stated that the transparent interfaces supported by glazing or windows encourage the observers to make a physical connection with the space. It also makes the interface safe and more exciting to interact with. He noted that 80% or more transparency of the street interface surface promotes a highly active and safe street interface.

Finally, the broken window theory developed by Wilson and Kelling (1982), states that certain environmental factors such as litter and broken windows can trigger forms of disorder that negatively alter the people's safety perception of the environment. Many researchers complemented the broken window theory. Skogan (2012) for example, found that disorder is one of the main factors that negatively affect perceived safety in public spaces, even more than crime rates or victimization risk. Order generates a perception that the community is under control and crime is controlled. Whereas, the environmental signs of disorder such as graffiti, poorly maintained landscapes, litter, vandalism, and poor lighting, etc., deliver subjective social clues that the community is not under control. Thus, the physical appearance in the urban environment influences the feeling of people's perceived safety.

Other environmental factors such as lighting and greenery are also seen as significant factors that influence perceived safety in urban spaces. In almost all of the studies that researched perceived safety, lighting was a major contributing factor to the issue of safety. This is because poor visibility and darkness create anxiety that criminal activities might happen in the darkness or blind spots. Whereas well-lit spaces give an overview of the space, delivering a feeling of safety and insurance to people (Painter, 1996). The presence of nature and green spaces is also seen as a factor that increases the feeling of safety (Nasar & Jones, 1997). A study has shown that one of the methods to create a safer environment and increase perceived safety is to add more greenery to the neighborhoods on the micro level (Jing et al., 2021). However, poorly maintained greenery suggests that people don't care for the area. This encourages criminal activities and decreases the perception of safety (Kuo et al., 1998). Furthermore, when the presence of greenery limits visibility and create obstacles, it can diminish the feeling of safety among people (Herzog and Kutzli, 2002).

To sum up, the spatial factors that affect perceived safety at the street interface are the density of users, transparency, openings, diversity of activities, car dependency, setbacks, buildings height, physical appearance, greenery, and lighting.

CLASSIFICATION OF STREET INTERFACES & CASE STUDY AREAS

In order to classify the street interface into different types of passive and active based on perceived safety, the spatial factors that affect perceived safety at the street interface were determined from the literature. In total 10 factors were used for the study: density of users, transparency, openings, diversity of activities, car dependency, setbacks, buildings height, physical appearance, greenery, and lighting.

Four primary factors were determined to use for the classification of street interfaces into passive and active types. These factors include density of users, transparency, openings, and diversity of activities. The other secondary factors were not used for the classification, to avoid a complex typology of street interfaces. However, they were considered for the spatial analysis of the passive and active street interfaces in terms of perceived safety. As a result, the street interface was classified into five types: very active, active, average, passive, and very passive (Figure 1).

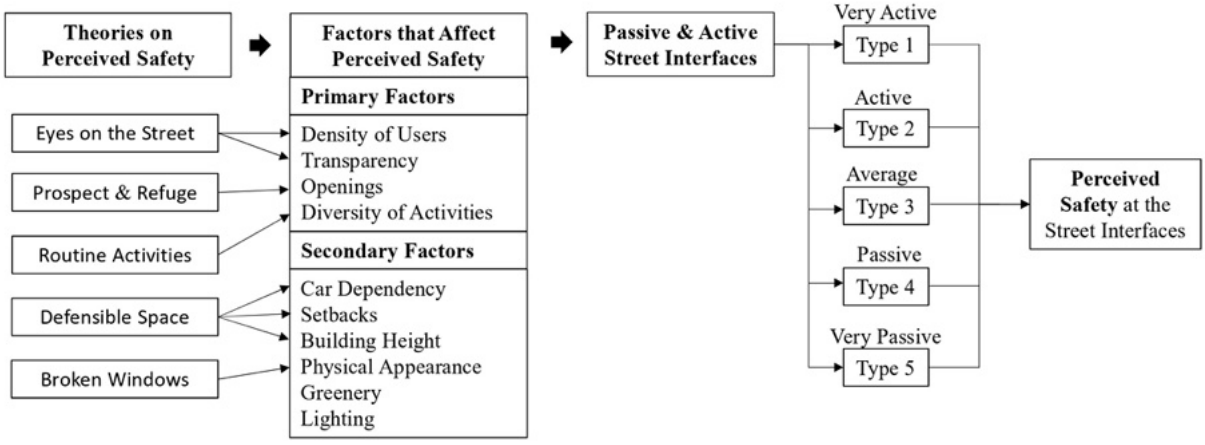

Figure 1. Diagram presenting the theories on perceived safety and the related spatial factors that were used to classify the street interface into passive and active types.

The case study areas were selected according to the classified types from important streets in the city of Istanbul. An area between 30-40 meters of the street interface was chosen from each street according to a diagnostic observation conducted by the researchers to choose the best area of the street interface that complies with the classified types. In total, five street interfaces were chosen: Istiklal Street's/Beyoglu interface as the very active type, Bagdat Avenue's/Kadikoy interface as the active type, Ciragan Street's/Besiktas interface as the average type, Murselpasa Street's/Fatih interface as the passive type, and Buyukdere Highway's/Sisli interface as the very passive type.

Starting from the very active type, the diagnostic observation that was conducted at Istiklal Street/Beyoglu has shown that this particular street has a huge density of users. However, this density might change according to the time of day or under special circumstances. But overall, the street's interface is characterized to have a large density of users when compared to the other four streets. Other than density, the transparent and open facades presence at the street interface, as well as the diversity of functions and activities, have made the street very active. For example, people were seen shopping, walking, sitting, socializing, eating, taking videos and photos, etc. As for automobile usage, the street is pedestrianized, which allowed it to attract more people and increase walkability. The presence of a tramway in the middle didn't seem to affect the walkability issue. But rather created a unique character for the street and increased activities at the street interface. People were observed to be taking selfies next to the tramway while it was passing. Although there was no presence of setbacks, the transparent and open facades made the street interface very active, allowing many eyes on the street. The building height to street width ratio was between 1:1 and 1:2 which is considered a good enclosure ratio. The story heights ranging from 4 to 6 allowed people to feel engaged with their surroundings. Overall, there were no physical incivilities at the street interface, with a low presence of greenery that was well-maintained and didn't create visual or physical obstacles. Finally, the street was visited in the evening to analyze the lighting quality, which was observed to be good. Besides the lights that were distributed between the buildings, the lights coming from the multiple stores and shops helped to make the space well-lit (Figure 2).

Figure 2. Photos taken from the very active street interface type at Istiklal Street/ Beyoglu.

The active street interface at Bagdat Avenue/Kadikoy is characterized to have a pedestrian setback between the private spaces and the public area. This setback attracted many users and activities to the interface. For example, the semi-private spaces of cafes and restaurants were visibly open to the public street, creating natural surveillance and increasing the range of activities at the interface. People were seen sitting, eating, and socializing at these pedestrian setbacks. Other than that, people were seen walking their pets and sitting on benches that were distributed along the street interface. Although the overall street width was larger than the building's height, which is a not desired enclosure ratio, the presence of large trees at the edges between the vehicular road and the pedestrian path created a human-scaled environment with a good enclosure ratio. The quality of lighting fixtures was observed to be good with minimum blind spots created along the interface. Finally, the presence of transparent facades and balconies, as well as

openings and doors allowed the interface to attract different people, and activities, making the street interface active. (Figure 3).

Figure 3. Photos taken from the active street interface type at Bagdat Avenue/ Kadikoy.

The average street interface type at Ciragan Street/Besiktas was observed to have less density of users than the active street interface type but still had a considerable presence of people. People were mainly seen walking, running, or driving scooters at this interface. The facades of buildings were considerably transparent with an approximate transparency rate of 50%. As for the openings or doors, there were some residential entrances and shops, or cafe entries. There was also a presence of pedestrian setbacks, usually elevated from the street interface level, creating a physical boundary between the public and private areas. The well-maintained greenery was certainly a significant factor at this street interface. The tall limbs of trees didn't create visual or physical boundaries between the users and the interface at the viewer's eye level. It provided shade and a good enclosure ratio for users walking in the street (Figure 4).

Figure 4. Photos taken from the average street interface type at Ciragan Street/ Besiktas.

The passive street interface type at Murselpasa Street/Fatih was observed to have non-maintained greenery growing on passive historical walls. Other than that, some residential buildings were also worn-out, resulting in a poor physical appearance of the street interface. There was limited access or openings to the buildings at this interface, with passive walls dominating the interface. Only some occasional entrances to residential buildings or small workshops were observed at this interface. Lighting quality was observed to be poor in the evenings. Blind spots were observed, especially along the passive edges of the historical wall. Automobile usage was certainly a dominating factor. The presence of a car setback, which was used as a parking space, limited pedestrian movement. However, the presence of some transparent facades, as well as nearby important historical buildings in the area, attracted some users to this interface. People were seen using the street interface as a passage to reach the historical attractions and leisure areas (Figure 5).

Figure 5. Photos taken from the passive street interface type at Murselpasa Street/Fatih.

Finally, the very passive street interface type at Buyukdere Street/Sisli was observed to have a significant domination of automobile usage. The street interface edges were surrounded by passive impermeable, and non-transparent walls on one side and a highway on the other side. There was no presence of people or activities at this interface. The enclosure ratio was observed to be poor, with a value larger than the recommended ratio which is 1:1 or 1:2. Finally, the presence of a highway resulted in a very passive typology of the street interface which is characterized to have limited or no presence of people, no activities, no transparency, and no openings. Furthermore, the quality of lighting that was distributed along the highway was observed to be very poor from the pedestrian's perspective. Darkness and poor visibility dominated the interface in the evenings and nights (Figure 6).

Figure 6. Photos taken from the very passive street interface type at Buyukdere Highway/Sisli.

RESULTS

As a result, the street interface was classified into five types of active and passive interfaces according to the spatial factors that affect perceived safety. In total four primary factors which are the density of users, transparency, openings, and diversity of activities, along with six secondary factors which are car dependency, setbacks, buildings height, physical appearance, greenery, and lighting were used for the classification and the spatial analysis of the case study areas (Figure 7).

Street Interfaces	Density of Users	Transparency	Openings	Diversity of Activities	Car Dependency	Setbacks	Buildings Height	Physical Appearance	Greenery	Lighting	3D Presentation of the Cases
Type 1 Very Active	Very dense	80% and more Transparency	15 – 20 Doors per 100m	(4 to 5) Very high diversity of activities	Pedestrian / Tramway	Direct No setback	Good ratio of enclosure	No signs of physical disorder	Well-maintained greenery	Good quality of lighting	Istiklal Street
Type 2 Active	Dense	50% to 80% Transparency	10 – 15 Doors per 100m	(3 to 4) High diversity of activities	Pedestrian / vehicular	Pedestrian setback	Good ratio of enclosure	No signs of physical disorder	Well-maintained greenery	Good quality of lighting	Bagdat Avenue
Type 3 Average	Average	30% to 50% Transparency	4– 10 Doors per 100m	(2 to 3) Average diversity of activities	Pedestrian / vehicular	Pedestrian setback	Good ratio of enclosure	No signs of physical disorder	Well-maintained greenery	Good quality of lighting	Ciragan Street
Type 4 Passive	Empty	10% to 30% Transparency	2 – 4 Doors per 100m	(1 to 2) Low diversity of activities	Pedestrian / vehicular	Car setback	Good ratio of enclosure	Signs of physical Disorder / Worn-out buildings	Non-maintained greenery	Poor quality of lighting	Murselpasa Street
Type 5 Very Passive	Very empty	0% Transparency	0 – 2 Doors per 100m	(0 to 1) No activities	Limited Pedestrian / Highway	Direct No setback	Poor ratio of enclosure	No signs of physical disorder	Poorly maintained greenery	Poor quality of lighting	Buyukdere Highway

Figure 7. Diagram presenting the classification of street interfaces according to the factors that effect perceived safety and the related case study areas.

CONCLUSION

Perceived safety at the street interfaces is a concerning issue for modern cities. This study classified the street interface into different typologies based on perceived safety. The classification aims to aid urban designers in studying the effect of passive and active street interfaces on perceived safety. The street interface was classified based on the spatial factors that affect perceived safety which were concluded from a systematic literature review. In total, four primary factors (density of users, transparency, openings, and

diversity of activities) and six secondary factors (car dependency, setbacks, buildings height, physical appearance, greenery, and lighting) were used for this classification. Accordingly, the street interface was classified into five different types which are the very active type, the active type, the average type, the passive type, and the very passive type. The diagnostic observation was then performed to choose case study areas from the city of Istanbul according to the classified type. The chosen cases were then evaluated and analyzed. The study results demonstrate the different typologies of street interfaces that can be later used to study perceived safety and its relation with the street interface's activeness and passiveness. Future researches can further develop this typological classification. For example, other than the five main classified types, sub-types can be also adapted to create a more cohesive classification of street interfaces.

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THE ASSOCIATION BETWEEN WALKABILITY AND FRAILTY IN LATTER-STAGE SENIOR CITIZENS: A STUDY IN KUMAMOTO PREFECTURE, JAPAN

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ABSTRACT

Frailty is a common condition among the senior citizens, especially latter-stage senior citizens, which can lead to a range of adverse health outcomes. Walking has been found to be effective in preventing and diminishing frailty, and neighborhood walkability is an important factor in determining the amount of walking that senior citizens can do and would like to do. However, the relationship between walkability and frailty in senior citizens has not been thoroughly investigated.

In this study, we aimed to explore the relationship between Walk Score and Frailty Index, and investigate whether walkability can influence the health status of latter-stage senior citizens. Our study involved 39577 latter-stage senior citizens living in Kumamoto Prefecture, Japan. We used medical data provided by the Kumamoto Prefecture Association of Medical Care Services for Latter-stage Senior Citizens to calculate their Frailty Index and proposed a modified Walk Score calculation method for the latter-stage senior citizens in Japan.

We found a significant negative correlation between Walk Score and Frailty Index, indicating that the higher the Walk Score, the lower the Frailty Index of the senior citizens in the later stages of life. This suggests that latter-stage senior citizens living in areas with higher walkability were healthier than those living in other areas. These findings suggest that interventions aimed at improving walkability in cities may be an effective way to prevent or reduce frailty in latter-stage senior citizens.

Our study provides important insights into the relationship between walkability and frailty in senior citizens and highlights the need for further research in this area. The results of our study have implications for policymakers and urban planners who are interested in improving the health and well-being of senior citizens in their communities.

Keywords: frailty, walkability, Frailty Index, Walk Score, latter-stage Senior Citizens.

INTRODUCTION

Frailty is a state of reduced physiologic reserve that increases susceptibility to becoming disabled(Buchner & Wagner, 1992). Numerous definitions and classifications of frailty exist, and in Japan, it is categorized into three types: physical frailty, mental frailty, and social frailty. Frailty is prevalent among the elderly population, which not only heightens the risk of adverse outcomes(Van Kan et al., 2008; Walston et al., 2006) but also necessitates extensive support services, placing a significant burden on both individuals and society's financial resources(Hayajneh & Rababa, 2021). Nevertheless, frailty is not irreversible, and engaging in physical activity has proven to be an effective means of reducing frailty. Several studies have demonstrated the effectiveness of physical activity in reducing frailty and improving the survival rates of frail older adults(de Labra et al., 2015; Langlois et al., 2012; Marzetti et al., 2017; Peterson et al., 2009; Theou et al., 2011). Walking, a low-skill and low-cost form of physical activity, is particularly well-suited for daily exercise among older adults. Previous research has shown that walking, despite its relatively low intensity, is effective in improving frailty among older adults(Landi et al., 2010; The LIFE Study Investigators, 2006; WATANABE et al., 2023).

The concept of walkability refers to the extent to which the built environment is conducive to walking. It encompasses various dimensions, including the accessibility, safety, and comfort of the walking environment(Frank et al., 2004; Sallis et al., 2004). Walkability is used to assess whether a city or community's built environment is suitable for pedestrian activities. A high level of walkability can encourage people to engage in walking, leading to increased physical activity and improved health outcomes(Hajna et al., 2015). Numerous studies have established a link between walkability and health, indicating that higher walkability promotes health and can reduce the prevalence of conditions such as obesity and cardiovascular disease(Frank et al., 2004, 2006). Some researchers have also explored the association between walkability and frailty among the elderly, demonstrating that low walkability is associated with frailty(Glicksman et al., 2013; Kim et al., 2019; Mitsutake et al., 2021).

However, most studies investigating the relationship between walkability and frailty have employed phenotype models to screen for frailty among older adults. However, this approach can only identify frail older adults and does not effectively measure the degree of frailty in this population. Additionally, most studies predominantly focus on physical frailty, neglecting the assessment and screening of mental frailty and social frailty. Consequently, the outcomes of such studies fail to provide specific recommendations for reducing frailty in older adults.

Therefore, the present study aims to investigate the relationship between walkability and frailty among the elderly in a more comprehensive manner. Through this research, we seek to offer effective recommendations on reducing frailty among older adults through urban planning practices. In this paper, we employ the Frailty Index, based on the deficit accumulation model(Mitnitski et al., 2001), to measure frailty among the elderly. This index not only enables an effective assessment of frailty but also covers physical, mental, and social frailty, allowing for a comprehensive evaluation of frailty in older adults. Furthermore, we utilize the Walk Score, an internationally recognized measure of walkability that has been adopted in Japan as a valid indicator of neighborhood walkability(Koohsari et al., 2018). In this study, we explore the relationship between community walkability and frailty among the elderly through the analysis of Walk Score and Frailty Index data.

2. MATERIALS AND METHODS

2.1 Concept Definition and Study Setting

The term latter-stage senior citizen means the elderly who is 75 years of age or older. This term is widely used in the Japanese health care and social welfare systems to better understand and meet the needs of the elderly population.

In this study, we selected latter-stage senior citizens in Kumamoto Prefecture to study the effect of the walkability of their residence on their frailty status.

As Figure 1 shows, Kumamoto Prefecture is located in the central part of Kyushu Island, Japan, with an area of about 7,409.48 km^2 and Kumamoto City as the prefectural capital.

The total population of Kumamoto Prefecture is 171,921. The aging rate (the proportion of the total population aged 65 or older) is 31.9%, and more than half of them (about 283,000 people) are aged 75 or older, as the Latter-stage senior citizens. We first modified the calculation methodology of Walk Score and Frailty Index to make them more appropriate for latter-stage senior citizen. Then the results of Walk Score and Frailty Index calculation were analyzed by data to explore the relationship between them.

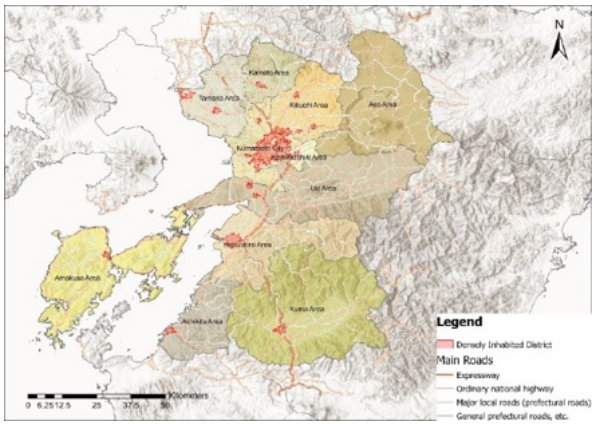

Figure 1 Map of Kumamoto Prefecture

2.2 Data Source

All the data we used were downloaded, purchased or crawled from official websites, and some were provided by institutions, as shown in Table 1. Among them, the 2021 Kumamoto Prefecture latter-stage Senior Citizens medical examinations data(MEdata) were provided by Kumamoto Prefecture Association of Medical Care Services for Latter-stage Senior Citizens. The dataset initially included 39,929 samples. After excluding ineligible samples (351 pre-stage senior citizens under 75 years old and 1 latter-stage senior citizen residing outside Kumamoto Prefecture), a total of 39,577 samples were used. The data consisted of residential addresses (text), health examination data, and questionnaire results. To obtain coordinates for departure points and facility data, the Geocoding API of Google Maps Platform was utilized. The coordinates of 398 departure point samples were accurate to the center of the "Ooaza" (a Japanese district type name, which can be understood as community), while the remaining 39,179 samples had precise building-level coordinates.

Applications	Category	Data Source
Calculate Frailty Index	Health examination data and questionnaire	Medata（from Kumamoto Prefecture Association of Medical Care Services for Latter-stage Senior Citizens）
Calculate Walk Score	Residencial data (departure points)	The “address” item from Medata
	Facilities data (destination points)	Mapfan website: https://mapfan.com Tabelog website: https://tabelog.com National data information: https://nlftp.mlit.go.jp/ksj
	Road Network data	Purchase from Esri (2017 Kumamoto Prefecture network data)

Table 1 Data Source

2.3 Modified Walk Score Calculation Method For Latter-Stage Senior Citizens

The Walk Score measures the walkability of a location, taking into account factors such as accessibility to daily use facilities, distance to these facilities, and walking quality, including intersection density and block length*(Walk Score Methodology, 2011)*. While previous studies have generally considered national living habits when using the Walk Score method(Zhou & Homma, 2022), there is a need to tailor the calculation to specific populations. This study focuses on the relationship between walkability and frailty among latter-stage senior citizens, whose living habits differ significantly from the general population, particularly in Japan.

To make the Walk Score calculation more relevant, asTable 2 and **Error! Reference source not found.** shown, we made two key modifications. Firstly, we adjusted the destination facilities and their weights based on the Walk Score methodology, incorporating findings from the 2012 Kumamoto PT survey*(Kumamoto PT Survey, 2012)* and considering the living habits of Japanese older adults. The weights assigned to various facilities were determined using an expert-assigned weights method. Medical facilities, for instance, were subdivided into nine categories with assigned weights reflecting their importance to elderly individuals. We also added post offices to financial facilities, considering their significance for pension-related matters. Additionally, we excluded higher-priced restaurants as they are less likely to attract most elderly individuals. Secondly, we addressed the walking distance aspect by determining the range for facility searches and implementing a distance decay function. Recognizing the limited physical strength and sensitivity to exertion among the elderly, we employed a Gaussian decay function. Given that a 15-minute walk is generally acceptable to most people(Pozoukidou & Chatziyiannaki, 2021), and the average walking speed for latter-stage senior citizens is 71 meters per minute *(MONOGRAPH The Fourth Wave, 2006)*. We considered facilities within 1065 meters from the departure points. Formula (1) and **Error! Reference source not found.** are the distance attenuation functions fitted based on this.

These modifications provide a more accurate assessment of walkability that aligns with the living habits of latter-stage senior citizens in Japan. By tailoring the Walk Score calculation to this specific population, we can better examine the relationship between walkability and frailty among older adults and gain insights that can inform urban planning and design strategies to enhance their overall well-being.

$$f(x) = e^{-\frac{x^2}{2\times 6.5655^2}} \qquad (1)$$

	Categories		Subcategories
3	Daily necessities	0.75	Convenience Stores
		1.5	Supermarket & Drug Store
		0.75	Grocery
2	Public transportation stations	1.25	Bus stop & Streetcar Station
		0.75	Railway station
2	Medical Facilities	0.5	Internal Medicine
		0.5	Surgery
		0.4	Dentistry
		0.1	Ophthalmology
		0.1	Gynecology
		0.1	Dermatology
		0.1	Psychiatry
		0.1	Urology
		0.1	Otolaryngology
1	Restaurants	1	Restaurants(Average price< ¥ 2000)
1	Finance Facilities	0.75	Post Office
		0.25	Bank
1.7	Personal Life	0.5	Park
		0.5	Gymnasium
		0.5	Public hall
		0.1	Barber shop
		0.1	Library
1	Shopping	0.33	Cloth Shop
		0.33	Electronics store
		0.33	Gift shop

Table 2 Category and weight of facilities

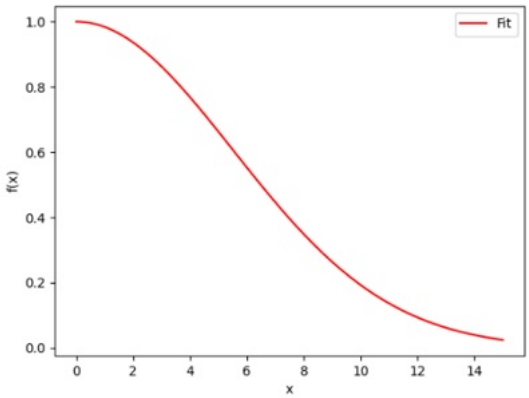

Figure 2 Distance Decay Function

Deficits		
Big category	Category	Sub-category
Objective (physical examination data)	Anomalies	BMI criteria
		Abnormal red blood cell count
		Hypertension
		Abnormal lipids
		Abnormal liver function
		Abnormal uric acid
		Abnormal renal function
	Diseases	Prone to fracture
		Diabetic nephropathy
		Chronic renal failure
		Renal diseases other than diabetic nephropathy
		Fatty liver
		COPD
		Pneumonia
		Other cardiovascular diseases
		Musculoskeletal diseases
		Dementia
		Depression
		Schizophrenia
		Sleeping pills (sleeping disorders)
		Cancer
		Diabetes
		Other diseases related to functional decline
Subjective （Questionnaire）	Smoking	Smoking
	Health Status	Health Status
	Mental health	Mental health
	Eating habits	A regular diet
	Oral function	Changes in chewing ability
		Tendency to chew easily
	Weight change	Weight loss
	Exercise and falls	Slower walking speed
		Falls during the year
		Exercise habits
	Cognitive function	Sometimes forgetful, such as asking the same question
		Sometimes does not know today's date
	Social Participation	Ability to go out
		Socializing with family and friends
	Social Support	Have someone close by to talk to

Table 3 Dificits Items

2.4 Health Data Processing And Frailty Index

The Frailty Index is a measure of frailty in older adults based on the deficit accumulation model. The Frailty Index examines more than 30 multifaceted items such as symptoms, signs, diseases, impairments, and check values, each of which indicates a deficit, such as a particular disease or habit. Each item has a score of 0 or 1, with 0 indicating no deficit and 1 indicating a deficit. For example, in the item "hypertension", 0 means no hypertension and 1 means hypertension. However, in a few items, depending on the severity of the defect, there are intermediate values between 0 and 1, such as 0.5, which means that the defect is present but not very serious. The average of all item scores is the Frailty Index, which is expressed as a real number between 0 and 1. There is no clear rule for the items to be examined in the Frailty Index, but it is necessary to evaluate at least 30 items using all categories of items, and the richer the items, the more accurate it is.

Therefore, we set up the Frailty Index measure as well as possible based on the data provided by Kumamoto Prefecture Association of Medical Care Services for Older Senior Citizens, as Table 3 shown.

2.5 Statistic Analysis

In this paper, SPSS was used to analyze the Walk Score and Frailty Index of latter-stage senior citizens in Kumamoto Prefecture and the deficit items used to calculate the Frailty Index separately. The Walk Score and the Frailty Index are Interval Scale variables, while the deficit items are Ordinal Scale variables. Therefore, Pearson correlation coefficient was used to calculate the correlation between Walk Score and Frailty Index, while Spearman correlation coefficient was used to calculate the correlation between Walk Score and deficit items.

We then used binary logistic regression analysis to explore the relationship between Walk Score and frailty in latter-stage senior citizens. Although the Frailty Index is a measure of frailty in older adults, it can also be categorized. The Frailty Index is usually interrupted by a value of 0.1 and 0.25, with those equal to or less than 0.1 being considered healthy, those above 0.1 and less than 0.25 being considered pre-fraily, and those equal to or above than 0.25 being considered fraily. The Walk Score can be divided into car-dependent areas (Walk Score < 50) and walkable areas (Walk Score ≥ 50) with an interrupted value of 50.

3. RESULTS

3.1 Walk Score Of Latter-Stage Senior Citizens In Kumamoto

We obtained the Walk Score of 39,577 latter-stage senior citizens addresses in Kumamoto Prefecture according to the modified Walk Score calculation method for elderly people, and the distribution is shown in Figure 3.

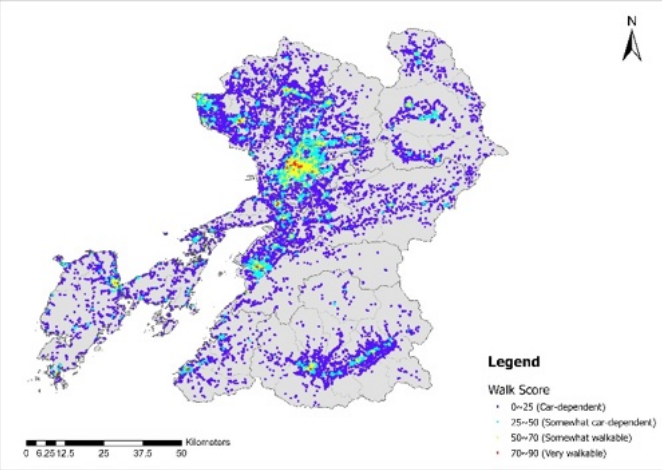

Figure 3 Walk Score calculation results

Statistics		
Walk Score		
N	Valid	39577
	Missing	0
Mean		28.80018532
Median		25.3063825
Mode		0
Std. Deviation		20.30429724
Variance		412.264
Minimum		0
Maximum		85.37466802
Percentiles	25	11.05128082
	50	25.3063825
	75	45.10560402

Table 4 Descriptive statistics of Walk Score

The overall Walk Score of the residences of 39,577 latter-stage senior citizens in Kumamoto Prefecture ranged from a low of 0 to a high of 85.37, with an average value of 28.8. The overall Walk Score was low, nearly half of the latter-stage senior citizens (19,603, or 49.5%) lived in Car-dependent areas where it was difficult to reach common facilities by walking only; about 81% of latter-stage senior citizens lived in locations that were not easily walkable (Walk Score < 50); only 19% of latter-stage seniors lived in areas that were walkable (Walk Score ≥ 50), and no seniors lived in Walker's paradise, i.e., areas with Walk Score ≥ 90.

Walk Score categories	Frequency	Percent
Car-dependent	19603	49.5
Somewhat car-dependent	12446	31.4
Somewhat walkable	6768	17.1
Very walkable	760	1.9
Walker's paradise	0	0
Total	39577	100

Table 5 Categories of Walk Score

The standard deviation of Walk Score of latter-stage senior citizens in Kumamoto Prefecture was as high as 20.3, indicating that the dispersion of Walk Score in Kumamoto Prefecture was significant and varied significantly. Spatially, Chuo-ku in Kumamoto City is the most prominent high-value area with high walkability. 365 of the older adults living in Chuo-ku live in Very walkable areas, nearly half of all older adults living in Very walkable areas. There are Very walkable areas in other cities and regions, but they are fewer in number and very concentrated. In terms of spatial distribution, it basically shows a decreasing Walk Score outward, centered on Very walkable areas.

3.2 Frailty Index

Based on the above Frailty Index index evaluation table, we calculated the Frailty Index of 39577 samples.

			Statistic	Std. Error
Frailty Index	Mean		0.215204904	0.000451596
	95% Confidence Interval for Mean	Lower Bound	0.214319766	
		Upper Bound	0.216090042	
	5% Trimmed Mean		0.212263464	
	Median		0.209210526	
	Variance		0.008	
	Std. Deviation		0.089840301	
	Minimum		0	
	Maximum		0.672368421	
	Range		0.672368421	
	Interquartile Range		0.119736842	
	Skewness		0.501	0.012
	Kurtosis		0.282	0.025

Table 6 Descriptive statistics of Frailty Index calculation results

As shown in Table 6, the Frailty Index for latter-stage senior citizens in Kumamoto Prefecture was the lowest at 0, indicating that these seniors are very healthy physically and psychologically, and have maintained close ties with society, with few problems. the highest Frailty Index was 0.67, indicating that these seniors are very frail and in extremely poor physical and psychological condition. The mean value is 0.21, which is in the pre-declining stage.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Health (0~0.1)	3641	9.2	9.2	9.2
	Pre-frailty (0.1~0.25)	22822	57.7	57.7	66.9
	Frailty (0.25~)	13114	33.1	33.1	100.0
	Total	39577	100.0	100.0	

Table 7 Stratification of Frailty Index

Using 0.1 and 0.25 as interruption values, all samples were divided into healthy, pre-frailty and frailty. As Table 7 shown, among all samples, 3641 older adults with the frailty status of healthy (9.2%), 22,822 older adults with the status of pre-frailty (57.7%) were the largest group, and 13,114 older adults with the status of frailty (33.1%).

3.2 Association Between Walk Score And Frailty Index

		Walk Score
Frailty Index (All)	Pearson Correlation	-.049**
	Sig.(2 tailed)	0.000
	N	39577
Frailty Index (Female)	Pearson Correlation	-.042**
	Sig.(2 tailed)	0.000
	N	22513
Frailty Index (Male)	Pearson Correlation	-.056**
	Sig.(2 tailed)	0.000
	N	17064

Table 8 Pearson Correlation between Walk Score and Frailty Index

Deficits			Correlation coefficient		
Big category	Category	Sub-category	All	Female	Male
Objective (physical examination data)	Anomalies	BMI criteria	-.012*	-.018**	-0.003
		Abnormal red blood cell count	-.024**	-.027**	-.020**
		Hypertension	-.066**	-.079**	-.048**
		Abnormal lipids	.033**	.020**	.046**
		Abnormal liver function	.023**	.040**	-0.005
		Abnormal uric acid	-0.009	-.017*	0.003
		Abnormal renal function	-.027**	-.048**	0
		Prone to fracture	.017**	.014*	.020*
	Diseases	Diabetic nephropathy	-0.008	-0.007	-0.008
		Chronic renal failure	-0.006	-.015*	0.005
		Renal diseases other than diabetic nephropathy	-0.008	-.014*	0
		Fatty liver	.039**	.038**	.039**
		COPD	-.010*	-0.007	-0.011
		Pneumonia	0.001	-0.003	0.007
		Other cardiovascular diseases	-.021**	-.021**	-.019*
		Musculoskeletal diseases	-.057**	-.057**	-.063**
		Dementia	-.011*	-0.008	-.016*
		Depression	.011*	.020**	-0.005
		Schizophrenia	0.007	0.01	0.003
		Sleeping pills (sleeping disorders)	.018**	.022**	0.009
		Cancer	0.006	.022**	-0.004
		Diabetes	-0.009	-.021**	0.009
		Other diseases related to functional decline	-.031**	-.041**	-.015*
Subjective （Questionnaire）	Smoking	Smoking	-0.008	.042**	-.023**
	Health Status	Health Status	.014**	.015*	0.011
	Mental health	Mental health	-0.004	0.007	-.020**
	Eating habits	A regular diet	.042**	.048**	.035**
	Oral function	Changes in chewing ability	-.034**	-.030**	-.041**
		Tendency to chew easily	-0.004	0.005	-.019*
	Weight change	Weight loss	-.021**	-0.008	-.039**
	Exercise and falls	Slower walking speed	-.032**	-.030**	-.035**
		Falls during the year	-.044**	-.034**	-.059**
		Exercise habits	-.090**	-.057**	-.136**
	Cognitive function	Sometimes forgetful, such as asking the same question	-.025**	-.014*	-.041**
		Sometimes does not know today's date	-.016**	-0.004	-.032**
	Social Participation	Ability to go out	-.049**	-.054**	-.042**
		Socializing with family and friends	.035**	.036**	.036**
	Social Support	Have someone close by to talk to	.011*	0.01	0.013

Table 9 Spearman Correlation between Walk Score and deficit items

We performed Pearson correlation analysis for Walk Score and Frailty Index, and Spearman correlation analysis for Walk Score and each of the deficit items used to calculate Frailty Index. the Pearson correlation for Walk Score and Frailty Index was significantly negative, but the correlation was weak at - 0.049, and the correlation was slightly higher for males than females, but there was no significant difference. This suggests that areas with higher Walk Scores have lower overall frailty in older adults, but the effect is limited. Further analysis can be performed from the Walk Score and the Spearman correlation coefficients for each dificit items. The results of the Spearman correlation analysis showed that Walk Score and most dificit items had significant but weak correlations, both positive and negative, and that Walk Score was negatively correlated with some lifestyle disorders such as anemia, hypertension, and musculoskeletal disorders, meaning that older adults living in areas with higher Walk Scores were less likely to develop these disorders. But the strange thing is the Walk Score was positively correlated with fatty liver and hyperlipidemia, which are lifestyle diseases with similar causes as hypertension. In addition, Walk Score was negatively correlated with "Changes in chewing ability ", " Weight loss", "Falls during the year", "slower walking speed", "Exercise habits", "Sometimes forgetful, such as asking the same question" , " Sometimes does not know today's date" and "Ability to go out" which represent physical function, but was negatively correlated with "need sleeping pills", "depression", "irregular diet", "Socializing with family and friends" and "Have someone close by to talk to" which are closely related to psychological and mental state. This indicates that older adults living in higher Walk Score areas have slower physical decline, but their mental and psychological status is a concern.

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
							Lower	Upper
Walkable or not	0.269	0.042	41.903	1	0.000	1.309	1.207	1.421
Constant	-2.615	0.054	2353.154	1	0.000	0.073		

Table 10 Regression analysis between Walk Score and Frailty Index(Healthy or not)

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
							Lower	Upper
Walkable or not	-0.104	0.028	14.387	1	0.000	0.901	0.854	0.951
Constant	-0.578	0.034	283.775	1	0.000	0.561		

Table 11 Regression analysis between Walk Score and Frailty Index(Frailty or not)

Table 10 shows the relationship between walkability and health. Dividing the sample into Healthy (Frailty Index ≤ 0.1, N=3641) and Not Healthy (Frailty Index > 0.1, N=35936) using 0.1 as the interrupted value of Frailty Index, the results show that Latter-stage senior citizens who live in walkable areas are 1.309 times (95% CI: 1.207-1.421) more likely to be healthy than those who live in car-dependent areas. Table 11 shows the relationship between walkability and frailty. Dividing the sample into Not Frailty (Frailty Index < 0.25, N=26463) and Frailty (Frailty Index ≥ 0.25, N=13114) using 0.25 as the interrupted value of Frailty Index, the results show that Latter-stage senior citizens who live in walkable areas are 0.901 times (95% CI: 0.854-0.951) more likely to be frailty than those who live in car-dependent area. In conclusion, Latter-stage senior citizens living in Walkable areas were more likely to be healthy and less likely to be frail than those living in Car-dependent areas.

4. DISCUSSION

In this study, we examined the relationship between frailty and walkability among 39,577 latter-stage senior citizen s in Kumamoto Prefecture in 2021. The results revealed a significant negative correlation between frailty and neighborhood walkability. Higher walkability was associated with lower frailty among the elderly, although the correlation was weak. Further analysis explored the relationship between Walk Score and deficit items used to calculate the Frailty Index. The findings indicated that higher Walk Scores were associated with a lower likelihood of lifestyle diseases such as anemia, musculoskeletal disorders, and hypertension, suggesting less physical deterioration compared to older adults residing in areas with lower walkability. However, it was peculiar that hyperlipidemia and fatty liver showed a positive correlation with Walk Score, while hypertension showed a negative correlation. This contradiction suggests the need for deeper investigation into the underlying reasons.

Latter-stage senior citizens living in more walkable areas were more likely to exhibit irregular diets, experience social isolation, depression, insomnia, and have risks to their mental, spiritual, and physical health. Nevertheless, they were also more exposed to the outside world and had better weekly outings and exercise compared to those living in less pedestrian-friendly areas. These findings provide valuable insights for policy makers and urban planners to address frailty in older adults. In areas with high

walkability, interventions can focus on addressing deficits in psychological, mental, and dietary habits by recruiting volunteers to provide companionship and meals. Additionally, urban design and renewal projects should consider incorporating open spaces and green areas, which have been proven to reduce depression levels among the elderly(Matsumoto et al., 2022). In low walkability areas, interventions should target the lack of weekly outings and exercise. A major key to Walk Score is the destination of the walking trip, but there are also purposeless walking trips for relaxation or exercise. Studies have shown that such purposeless trips are highly correlated with walking environment and safety(Owen et al., 2004). Therefore, it is important to create safe and beautiful walking environments in low walkability areas to promote walking among older adults. They should also be educated about the importance of physical activity to increase walking or other physical activity to reduce frailty.

However, there are limitations to this study. Firstly, the lack of information on the economic and social conditions of the sample, such as income, education, employment, and occupation, introduces potential confounding factors and reduces the precision of the results. Secondly, the cohort analysis only considered health information from 2021, limiting the understanding of the long-term effects of walkability on the health of latter-stage senior citizens. Additionally, it is unclear whether the correlation observed is due to the presence or absence of deficits in the residential area or if the sample chose to live in those areas based on deficits. Future studies should extend the research period and examine the frailty and survival of latter-stage elderly individuals in different levels of walkability using several years of health data. This would help establish a direct causal relationship between walkability and impairments, providing more precise insights for developing social support policies. Furthermore, administering questionnaires to elderly individuals to gather more detailed social and economic information can help exclude confounding factors and obtain more accurate results, thus providing more precise recommendations to enhance the health status of older adults in their later years.

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CONSERVATION OF “CIUDAD UNIVERSITARIA DE CARACAS” WORLD MODERN HERITAGE

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ABSTRACT

If we look at it from the beginning Industrial Revolution was a change never seen before, so this movement emerge some currents. It spread all over the world, starting from the early 18th century. But movement affects architecture near the start of World War I. Searching for a quick solution to the problems experienced in the industrial revolution has shown itself as a fast and unadorned modern housing production in the urban area. Modernism influenced architecture along with science, art, and literature. For this reason, the concept has a large perspective. Therefore, it is important to understand the concept of the other and its relationship with other disciplines. This research focuses on modernism in educational institutions. The concept viewed the relationship between modern heritage and conservation over two cases.

The study got shaped with this aim. Firstly, examined the modernism concept of how is emerging and its effect on different countries. Several architects and designers approaches have helped develop concept. Then some cases and currents are mentioned with supported images. Also, it was mentioned leading architects of the movement and their works. Before moving on to cases it is viewed as international organizations like UNESCO, ICOMOS, Europe Union, and DOCOMOMO. So, the concept is examined from the perspective of architecture and conservation for a unifying approach.

World Heritage Listed Ciudad Universitaria and Ciudad Universitaria de Caracas selected for review. That instances were compared for saw the difference. Ciudad Universitaria, chosen as the main instance, was the inspiration for the other instance. Some suggestions are offered for the conservation of Ciudad Universitaria de Caracas. That suggestion aims to be self-sufficient for the university and its conservation.

Keywords: Modernism, Modern Heritage, Educational Institutions, Conservation, World Heritage List.

INTRODUCTION

Modernism started with Western society during got the industrial revolution. With the emergence and growth of mechanization came the need for social and cultural change. Mass production, population growth, migration from rural to urban, and political developments supported the emergence of the new design method. According to Leach's modernism relationship between architecture and social topics, '' Architecture in its commitment to functionalism-a functionalism that is ultimately little more than a style-must not overlook its social 'function'(Leach, 1997, p.25). From this aspect, designers had to design products following to era with an enlarged viewpoint. Furthermore, they called that design method modernism. Essential to humans and the mind modernism embraced a basic and functional style. the concept has different viewpoints from the past movement, and it focused on functionality with simple design methods. Moreover, it defends should be formed a new culture.

According to Heynen '' in the urban environment, in changing living conditions, and in everyday reality, the break with the established values and certainties of the tradition could be both seen and felt. The modern became visible on very many different levels.'' For that reason, she suggested the distinctions between the term modernization, modernity, and modernism. The term definitions are like this. Modernization is the result of developing technology and industrialization consisting of social improvement. Capitalist world market. Modernity is the definition of human personal experience in that transformation era. It refers to always will be different past, present, and future from each other. Modernism is twofold, it is the artistic and theoretical dimension of social and individual experiences linked to social-economic processes (Heynen, 1999, p.10). The purpose of separating terms better understand modernism.

Modernism has a broad time frame and perspective. For that reason, it has many styles inside. Bauhaus, De Stijl, Constructivism, Expressionism, Functionalism, Minimalism, International Style, Metabolism, Brutalism, Postmodernism, High-Tech as well as Deconstructivism one of them. The especially International Style emerged with early Modernism principles in Europe.

THE DEVELOPMENT OF MODERNISM

Ruskin and Velde under the leadership emerge Art Nouveau in Europe and Jenny, Burnham as well as Sullivan with the contribution of rationalist architecture in America are a precursor to the development of modern architecture (Dostoğlu, 1995, p.46). Modernism's emergence resulted from orientation to the new, and developments in the era. The concept has spread out of the West worldwide, with the impact of universal social issues. As the context is allowed the development of new ideas because of has an enlarged perspective. This interpretability opens the way to unique designs. Modernism when it first emerged an attitude with a different perspective on the past and the future creating new is help to design unique artifacts. The concept affected by social problems destroys the social class difference with the use of simple forms.

When we examined European Modernism, we see that the concept emerged with the pursuit of the struggle for human rights. Following philosophical, literary, and political developments, the effects of ideology on architecture began to be seen. Result of the mechanized environment with developing technology it needs new city plans. The garden cities are the result of those ideas. After, these ideas were followed by different architectural styles.

America's modernist approach is different from European's. The discovery of America coincided with the Renaissance, so they have not lived Middle Ages. For this reason, the impact of modernism in America was not intended as a struggle for human rights. As a result of the uncontrollable and rapid spread of the concept, some imitation artifacts have emerged. The reason for imitation is only the adoption of form.

Modernism is based on abstract ideas and designed unique artifacts with their help. Artists express with modernism what they imagine in their own minds. As an example of this, the Bauhaus ideal stands against modern architecture to the idea that it's only form and argues that modernism is based on philosophy. It showed the world how to make original and unique artifacts with artists and artisans coming together due to its caring feed from different minds (Sezer, 2019, p.53). Architects who embrace the concept reflect the way they perceive life in their artifacts. So, this different existence in each architect help designs unique artifacts. In this context, modernism had sub-styles within itself. The architects' approaches unite them in a common point; to create something new. These common points create the CIAM conference' base. CIAM conference is important because through conferences both exchange ideas and also tell people their ideology.

According to Aratkan and Kandemir, Mies van der Rohe specialized in the area of open-plan interior and skyscraper design, Le Corbusier aimed to write how to make architecture from the beginning, Adolf Loss worked on functionality and mass architecture, as well as Alvar Alto tried to establish connection modernism and authenticity. These movement pioneers are individual and abstract ideas concretization causes monotony in artifacts. So, the artifacts are getting ordinary. For this reason, current while universalizing has to feed on other cultures and different minds to protect their authenticity (Aratkan and Kandemir,2023, p.34-35).

The dynamism of the concept helps to stay alive even today. Le Corbusier's five principles are like a design guide for modern architecture. Nevertheless, we could see that his structures did not implement every principle. The fact that he designs his buildings according to need reflects the importance that modernism attaches to functionality as well as its broad perspective.

This situation shows us how modernism keeps up with transformation. Even today we talk about the modernism concept because it's a breaking point. Humanity has so many different transformations but this one with a distinct line. It can be said modernism is a transition period from old to new. We could see the same function but different structure styles if we examine modernism before and after. For to give direction future we need to understand the clues that the past gives us. For that reason, conservation becomes more and more important, we should keep our past to light our way.

MODERN HERITAGE RELATIONSHIP WITH CONSERVATION AND INTERNATIONAL ORGANIZATIONS

‘’Today, the term "modern architecture" no longer refers to a contemporary fact, but to a historical period and a set of understandings’’ (Özyalvaç, 2013, p.297). On the other hand, modern architecture is different from other heritage buildings. Buildings before the period are majestic and heavy structures. Whereas modern architecture buildings have simple, transparent as well as light images. Need and functionality are foregrounded in modernism.

The materials technology new development with the start of being due to buildings was less durable and was prone to age at the beginning. Structures that are far from ornate and have an inculcated appearance are not encountered before, and the rapid formation of aging marks removes the idea of protection from society (Polat and Can, 2008, p.180). The question of what we are conserving has come to the agenda because modern structures are different from other structures. Then started arguments about which architectural artworks should be preserved and not. The period that a building represents is essential for seeing and understanding the past from the future. It is precious to preserve because it witnessed one period because it shows us what happened in the past and what we can learn. Conservation’s enlarged viewpoint started with that understanding and then the emergence of some organizations to preserve modern heritage buildings.

The buildings are recent and different from other buildings that have been preserved until today, which causes them to be undervalued by the people. Founded organizations help people to understand the value of modern heritage. UNESCO is an organization that has been working in different areas founded by the United Nations. According to Identification and Documentation of Modern Heritage Published in 2003, they have identified titles to define and preserve a vision of modernity. (UNESCO 2003) UNESCO cooperates in the field of conservation with ICOMOS. ICOMOS has a science committee named ISO20C. ISO20C lists the structures and gives recommendations about conservation to ICOMOS. It's not only buildings, their aim is to conserve all architectural elements (ICOMOS 2023).

Such as ISO20C did to ICOMOS, European Council give recommend member countries for the conservation of 20th- heritage in a 1991 recommendation document. It is noted that without special attention to heritage protection, irreversible losses may occur. As such, this part of history may be blurred for future generations. This is why the European Council, in its 1991 Recommendation, stated that 20-th century architecture is an inseparable part of European history (European Council 1991).

An additional modern heritage conservation organization is DOCOMOMO which would like to attract people's attention to modern heritage. Their main aim is to list and conserve modern heritage elements. The organization has a significant perspective, it adds to preserving many architectural elements not just only buildings. They separate groups in their areas, and they make categorize. Another hand DOCOMOMO identifies itself as the guardian of modern heritage (DOCOMOMO 2023).

Being take place on the UNESCO World Heritage List creates prestige for the countries. Furthermore, planning a comprehensive conservation period is required because the structures on the list have outstanding universal value. Also, Ciudad Universitaria de Caracas selected for review is one of the modern buildings on the list. This study aims to inspire modern heritage buildings that need conservation and renewal such as Ciudad Universitaria de Caracas. During the debate on whether to preserve modern heritage, many unique buildings have been threatened with destruction or extinction. Some structures couldn't conservation or renewed for cost inefficiency however some of them couldn't because their value is not understood. Ciudad Universitaria de Caracas also couldn't conserve and renew because the located country cannot allocate enough budget to the structure. For that reason, development some offer suggestions for the structure to be self-sufficient.

CENTRAL UNIVERSITY CITY CAMPUS-WORLD HERITAGE LIST

Central University City Campus of Universidad Nacional Autónoma de México is on the UNESCO world heritage list. The campus was designed by Mario Pani and Enrique del Moral. Structures design influenced by the principles of Le Corbusier are enriched with artifacts (ArchDaily, 2013). It was built by more than 60 designers, architects, and engineers and has integrated design with Mexican traditional and modern attitudes. The area has existed 3 parts, the school part, the sports area, and the University Olympic stadium. Besides, urban, architecture, engineering, etc. areas symbol is a case. (Figure 1)

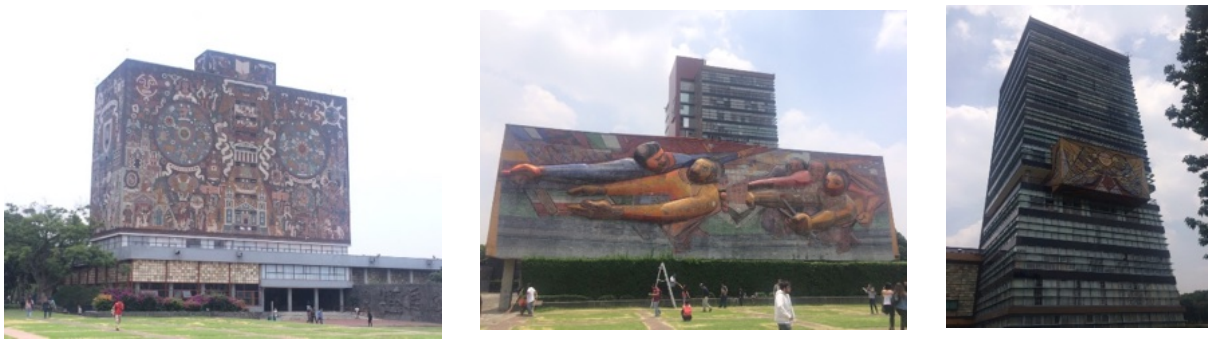

Figure 1. Some campus structures.

The fact that the campus has an authentic design was effective in its inclusion in the UNESCO World Heritage List. The campus has been accepted to the UNESCO WHL for meeting criteria I, II, and IV of Outstanding Universal Value. According to criterion I, the campus is an urban symbol witnessing social and cultural values. At the same time, it is a unique case of 20th-century modernism. The campus reflects the attitude of the period in which it was built along with the culture of the place where. For that reason, it has a criterion II. Also, it is a rare construction of modern architecture and urbanism that have an influential relationship. Hence criterion IV is meeting (UNESCO 2000).

The university's nomination dossier includes a comparative analysis with other universities in Latin America and the Caribbean. In the analyses also exist the University City of Caracas. According to the comparative University City of Caracas, it includes modern architectural principles and fine arts artifacts. However, Central University Campus besides modern architectural principles refers to local traditional arts (ICOMOS 2007).

University is an autonomous organization, and they have their own office that coordinates the management of the campus. Offices are also responsible for campus maintenance and conservation. Office of Special Project, one of the offices has developed Integral Plan to provide interaction between functions. Projected University City (PROMACU) to control management due to multiple offices (ICOMOS 2007).

No major changes were made, conserving the authenticity and integrity of the campus. The support of the office is great in providing this conservation and care. For that reason, the office is a huge chance for the campus. The office depends on the university. The campus's own management system can be a source of inspiration for the development of Ciudad Universitaria de Caracas. Because Ciudad Universitaria de Caracas needs maintenance and conservation.

CIUDAD UNIVERSITARIA de CARACAS-WORLD HERIATGE LIST

Ciudad Universitaria de Caracas is the main campus of the Central University of Venezuela located in Caracas, the capital city of Venezuela. The campus is designed by Architect Carlos Raul Villanueva. Villanueva worked with many artists in the design of the campus buildings with a modern design. The artworks exist on mosaic walls, facade designs, and sculptures. (Figure 2)

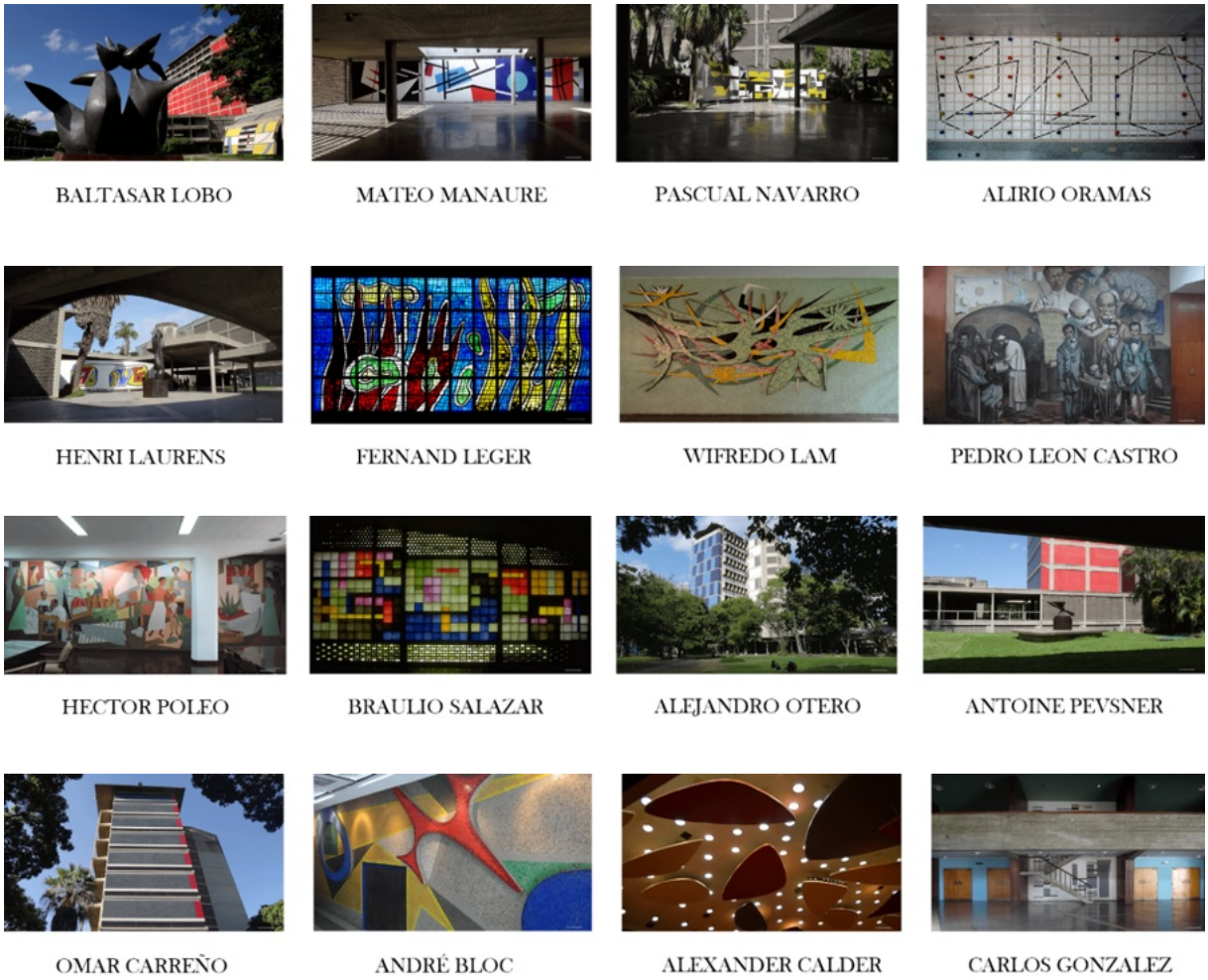

Figure 2. Some artifacts on the campus.
/ http://www.ucv.ve /

Buildings of more than 80 exist on the campus. The Olympic pool, swimming pool, odditorium, hospital, and library are other buildings that serve that other than faculties. The campus near the existing botanical garden has different types of exotic plants. Lagoon, gentian, orchid, and palm are one of them. Buildings' relationships are designed with balance and campus elements are revealed through art, architecture, and natural interaction. Structures' mass shapes are integrated with colorful artworks.

Acceptance Into the UNESCO World Heritage List and Current State

The building has applied to UNESCO and to be World Heritage List took a year. In 1993, as a first step through the efforts of university professors, the building was declared a National Historic Monument by the country's National Board for the Protection and Conservation of the Nation's Historic and Artistic Heritage. After 4 years decided applied UNESCO World Heritage List. Preparing and evaluation process then December 2000 approved for inclusion in the list. One month later, UNESCO general coordinator' was officially accepted to the list because of his visit in January 2001.

The campus was accepted to the list according to UNESCO Outlanding Universal Value I. and IV. criteria. UNESCO takes attention here to the Integrity and Authenticity of the structure. On the issue of integrity,

they emphasize that concrete material after 50 years could be a decay problem and the stability of the ground must be considered. On the other hand, they warn for mosaics at the front and walls because they started to leave their place, it could be possible to fall and break. When we look at Authenticity, we see that the interventions in the structure are small, and every intervention is recorded (UCV 2023).

Since the campus has been accepted took 22 years until today. It appears to be, if we examine every year made UNESCO's meeting report hasn't any work about the campus. For 22 years, while they have been working on different parts of the country on the list, there is no mention of the campus. About the campus has been spoken last time 22 years ago (UNESCO 2023).

Figure 3. Some of the damages on the campus.
/https://www.bbc.com/mundo/noticias-america-latina-58337209/

Today, the modern symbol of Venezuela Ciudad Universitaria de Caracas needs conservation and renewable. University is working now and has a circulation inside however it has so many problems because the government cannot allocate enough budget to the structure. (Figure 3) Besides aging pipes, collapsed bridges and roofs, neglected greenery, as well as cracking buildings it is happening security problems (BBC 2021). The campus urgently needs a budget for the repair on the one hand it is required to inform users and the public about the importance of the building. Therefore, has been developed a suggestion plan for the development. The plan theoretically constructed includes campus students, teachers, residents, and tourists.

RECOMMENDATION PLAN

The university needs a plan for development and repair. The first need is a budget to manage themself. However, a system must be created because they won't get money from the government or different organizations.

Step One: Students and university professors should create a volunteer-based club with the participation of. The purpose of the club provides the campus with an institution that will ensure self-sufficiency.

Step Two: They should be determined meeting days for knowledge transfer. The club will be responsible for campus maintenance and cleaning, so everyone must clearly understand their role. Sharing tasks can help to finish quickly works.

Step Three: Nowadays, social media accounts are important to increase recognition. It could be, opening active accounts, for promoting the university and making event announcements.

Step Four: Events are a source of budget this reason is listed below four different events. **(**Figure 4)

Workshops: So many artists' artifacts are available on the campus. Both can get information about artists and also under the influence of their artifacts can create paintings, and sculptures such as artifacts. Workshops announced on social media can be done under the coordination of chosen club students.

Tour Trips: Under the students' guidance, campus tours can be arranged to be open to all who wish to participate, such as tourists and locals. At the same time, workshops and campus tours can be matched for might be they would like to participate in the second event. Either, if they don’t know other events this way, they could learn and participate at other times.

Rent Space: The university has available for use, a swimming pool, tennis court, as well as a baseball and soccer field. Besides Olympics stadium is available. These areas could be open for use and can be rented to external users. It is permissible for festivals, competitions, and shows in addition to sports activities.

NFT: Nowadays, it is important follow to the development of technology. Technology and social media help us to reach many people. For that reason, which is the symbol of the university's mosaic artifacts, facade designs, and sculptures can be interpreted by students, transformed into virtual artifacts, and then sold.

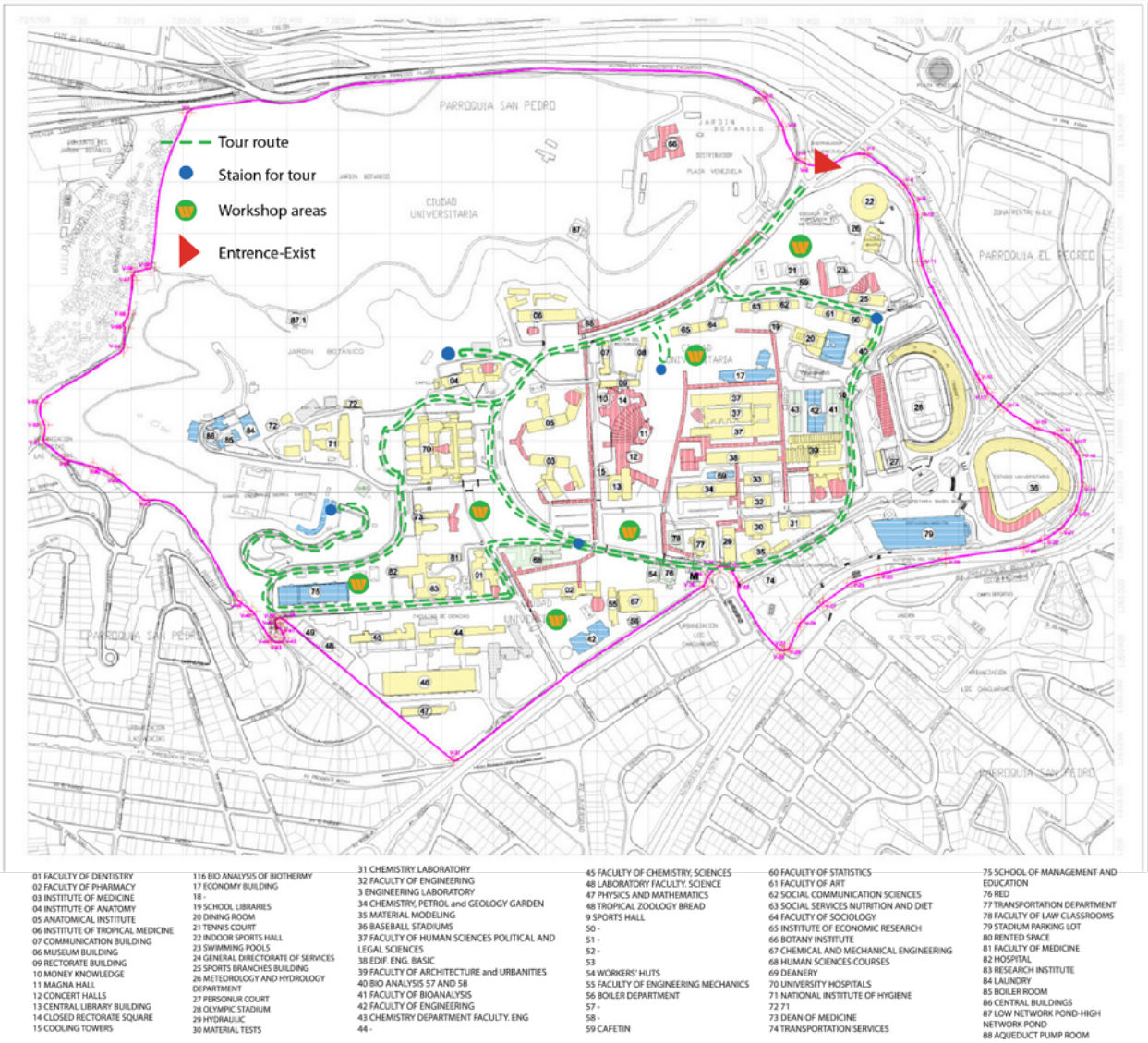

Figure 4. Campus map showing the planned tour route and workshop locations. /http://www.ucv.ve/organizacion/rectorado/direcciones/consejo-de-preservacion-y-desarrollo-copred/la-ciudad-universitaria-de-caracas-cuc/plano-de-la-cuc.html/

Step Five: Revenues generated from events' have to make a budget management plan to decide how and where it will be used. Primarily should be solved security problems. Then, other steps must be taken.

Step Six: The last step is the point of where should start for the renewal of buildings because the budget is increasing. Finally, restoration could be started so clear steps will be taken for the conservation of the campus.

Consolidation and Reinforcement

When the campus is examined, we can say restoration techniques consolidation, and reinforcement methods will help the university to quickly recover. While start to the restoration was should choose the most urgent buildings. However, sometimes can be queued low-damage buildings because as time passed low-damage can be raised and going to be a big problem. What's important here is quick and take the right steps.

Restoration of buildings where students study should be done in parts. For instance, prefabricated structures that can be easily dismantled and reassembled when reinforcement is to be done in the Faculty of Science will help to learn to continue without interruption temporarily.

With the support of the architecture and urban faculty, it was thought that a plan could be made on where to start when the budget is collected by making a risk assessment of the buildings. Department professors can prepare a restoration plan together with the students. Heads of departments can negotiate with private companies and meet with restorer companies that can do the restoration.

Figure 5. Some damaged fields that can be prioritized. /https://www.bbc.com/mundo/noticias-america-latina-58337209/

The open corridor is half open tunnel protecting students from the sun to going from one faculty to another. Some concrete awning losing their strength has fallen to the ground. (Figure 5) The budget that will come from the suggested plan is repairable with the consolidation method. This repairable looks small but might affect students' motivation positively.

CONCLUSIONS

If we look at modernism's history and development, we can say concept raising with era. This concept is aimed of keep up with technological developments. Nowadays everything has changed so quickly. Every transformation in the era leaves previous development in the past. Modernism due to its prevalence is available so many modern heritage buildings worldwide. Forgotten, still under-appreciated, or under-costed, some modern heritage buildings have fallen into disrepair. The case of the University City of Caracas is one of them.

In this study, we chose educational areas in two cases in the UNESCO World Heritage List: Central University City Campus and the University City of Caracas. Central University City Campus is the case of conservation well. Also, the University City of Caracas example is need maintenance and neglected place. That reason has thought it can be an inspiration for the University City of Caracas. The reason for the choices in these opposite cases is to make a comparison and draw a conclusion. Moreover, the aim is to find how to help neglected structures.

The campus has a unique architecture which is an educational institution, and it gives inspiration to students. University's campus design, simple architecture, and relationship with nature create balance other hand keeps precious artifacts everywhere. Even today campus has a special place despite its neglected state for those who are aware of its value. An intra-university office that was instrumental in preserving the Central University City Campus led to the idea that a similar club could emerge in the University City of Caracas. Then the recommendation plan emerged.

Recommendations are based on students' and university professors' teamwork. The aim is to be able to make use of the artistic and architectural features of the campus to organize events and earn a budget. For this reason, in this study, the priority problem, which is budget creation, is emphasized. A comprehensive study is required for the restoration process, and there is no doubt that existing faculties will provide local support in this regard.

Events are the main part of the plan because it is provided that there is an interaction on campus. Awareness is aimed to be created with the recommended activities. People's experience of space can help them gain sensitivity to space. In addition to workshops and tours, digital artworks can gain international recognition. Digital interpretation, sharing, and sale of artworks from the campus may be particularly interesting to the younger generation.

The reason why these proposals are important is to show what can be done, not only for the University City of Caracas but also for other buildings like it that have fallen into disrepair. If recommendations are really happened and we can see the result might be club may become an organization. This study is intended to inspire other neglected modern heritage buildings and pioneer future studies in this field. To take the study forward from now on development recommendations can be offered in the field of modern unmaintained dwellings, public buildings, or other architectural elements.

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DIGITAL MEDIA USE BY PEOPLE WITH DISABILITIES

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ABSTRACT

Disabled people are one of the vulnerable groups that experience social exclusion in a multidimensional way and cannot integrate into society. Today, the use of digital media is very important for the social inclusion of people with disabilities. Access of people with disabilities to basic areas of life such as education, work, and health should be as equal as other individuals. However, it is controversial to what extent disabled people are effective in using digital media. This study aims to examine the access and use of digital media by people with disabilities and to encourage discussion. In this direction, the factors that limit disabled people in the use of digital media and solutions for them are questioned. In this context, the experience of people with disabilities, who are one of the groups with the least visibility in social life, in using digital media, which is included in all areas of social life, reveals the importance of working within the framework of social exclusion and inclusion literature in the digital age. A systematic literature review method was used in the research, and a thematic framework was developed. As a result of the research, accessibility, design, and participation emerged as three main themes that affect the use of digital media by individuals with disabilities. It is thought that this research will contribute to social development in the digital age.

Keywords: Disability, digital media, social exclusion, inclusion, accessibility.

1. INTRODUCTION

Individuals who can be exposed to negativities more easily, cannot defend themselves, and cannot protect their rights in the society they live in are vulnerable. Today, the social exclusion that occurs in societies where these vulnerable individuals exist is increasing. Disability is seen by society as a disease that needs to be treated, and there is a lack of knowledge and understanding of what disability means to them (Cocq & Ljuslinder., 2020). Disabled individuals, one of the groups exposed to this vulnerability and social exclusion, experience a disadvantage in accessing digital space and having information and communication technology knowledge in addition to the social exclusion they experience in real life. For example, people with intellectual disabilities access the latest technologies much less frequently than those without disabilities (Carey et al., 2005). According to Altinay et al. (2016), access to media in the digital age is very important for people with disabilities to remove barriers to social and institutional activities in society. Access barriers, software and hardware deficiencies, costs, and social and cultural issues are seen as the reasons for using less digital media. The problem is that designs and technology are developed for a single type of person, unlike people with disabilities and special needs. This situation triggers the exclusion of disabled people from society and the reproduction and consolidation of exclusion in the digital environment. Although the rate of access to digital media by persons with disabilities is lower than those without disabilities, the use of digital media is being tried to be widespread. It is emphasized in the literature that increasing access to digital media tools is important for the social inclusion of people with disabilities. With the use of digital media, people with disabilities can represent themselves as actors participating in social activities and interacting with public spaces.

In this context, a literature review was conducted on the use of digital media and disabled individuals. In the literature, it has been understood that studies and evaluations are inadequate on the use of digital media by disabled people. This situation, which constitutes the motivation of the research, directed the aim of the study to encourage the access and use of digital media by disabled people to examine and discuss. In this direction, the questions of what are the factors limiting the disabled in the use of digital media and what are the solutions for them were asked. As a method, systematic literature analysis was determined, and 14 literature studies were analyzed by extracting and narrowing the research on digital media, and people with disabilities from the Web of Science search engine. With the syntheses made as a result of this analysis, a thematic framework was tried to be put forward. As a result of the research, the main obstacles to the use of digital media by people with disabilities were identified as lack of accessibility, lack of design, and the problem of participation. Among these themes, accessibility and participation issues are directly related to how to improve the dysfunctional design of digital media for people with disabilities.

This research is structured as follows: In the first part, evaluations on digital media use and disabled people are presented based on a literature review. In the second part, the research design and the applied method are stated, depending on the relations extracted from the first part. In the last part, the findings of the study and the following conclusion section include the research questions and relevant evaluations on the findings.

2. DIGITAL MEDIA USE AND DISABILITY

The concept of vulnerability, which means being easily and quickly damaged, is generally expressed as a state of helplessness. According to MacIntyre (1999), vulnerability is the state of being able to suffer socially and individually because of the need for people and institutions. The reason people are vulnerable has two dimensions: embedded vulnerability and embodied vulnerability (Abrisketa et al., 2015). Embedded vulnerability depends on the biological mental and physical capacity of individuals, while embodied vulnerability depends on income, age, class, or ethnicity. These dimensions make the concept of

vulnerability a dynamic concept dependent on social changes (Consumer Affairs Victoria, 2004). Therefore, vulnerable groups and individuals may develop vulnerabilities specific to different periods. It can be affected by different people at different times and in different ways. In other words, there are different degrees of susceptibility to the harm suffered by vulnerable individuals. In the past, vulnerable groups were first defined in ethical guidelines for medical and biomedical research. While these vulnerable groups were identified as ethnic minorities, economically disadvantaged, and terminally ill in the Belmont Report in 1979, The Council for International Organizations of Medical Sciences (CIOMS) added the disabled, children, elderly, unemployed, homeless, immigrants, prisoners, and refugees to this classification in 2002. In addition to these, today, women, pregnant women, stateless people, indigenous peoples, people with contagious diseases and LGBTI+ are included in the vulnerable groups according to the decisions of the United Nations and the European Court of Human Rights (Çelik, 2020). In addition, those with learning disabilities, those with limited education, drug users, veterans, youth, rural residents, activists, and victims of trafficking are also considered vulnerable. These vulnerable groups and individuals are considered to be at high risk of social exclusion in society (Butler, 2010). Social exclusion is a process in which individuals are pushed to the limits of society, and their full participation in society is hindered. Social exclusion results from a combination of participation in decision-making and political processes, access to employment and material resources, and the inability to integrate into common cultural processes (Madanipour et al., 1988). Although it is not their fault, individuals cannot unite with society and cannot access the social, economic, or cultural opportunities provided by society. Therefore, the inability of individuals to access their civil, political, and social rights is seen as the inability to realize their citizenship (Walker & Walker, 1997). Thus, individuals feel powerless in the society they live in and cannot control the decisions that affect their daily lives. Social exclusion is used together with the concepts of social rejection, stigmatization, discrimination, segregation, and marginalization in the literature (Kurzban & Leary, 2001). Although there are differences between these concepts and social exclusion, it refers to the fact that individuals are not noticed, ignored, rejected, not accepted into the group, being excluded from the group, being discriminated against, and being marginalized. The participation of these individuals who are exposed to social exclusion in the society they live in and their integration into economic, social, and political life is the basis of social inclusion (Leigh, 2011).

In the light of this information, it is a fact that people with disabilities face many local and social obstacles as part of their social inclusion agenda. The concept of disability is defined by the World Health Organization (WHO) within the framework of health factors such as disorders, diseases, and injuries, contextual factors such as social attitudes and characteristics, environmental factors such as legal regulations, and individual factors such as age, gender, and education (WHO, 2002). In addition, disability is shaped by a variety of conditions, such as financial well-being, geographic location, local politics, and culture (Iarskaia-Smirnova & Verbilovich, 2020). Social and physical disabilities make it difficult for people with disabilities to act, hear or understand others, speak, or communicate (Stough et al., 2015). Disabled individuals are particularly vulnerable to education, employment, access to public services (transportation, infrastructure, etc.), and economic resources, and they experience social exclusion (Köten & Erdoğan, 2014). This situation is a very dynamic process and excludes disabled people from society in different fields and at different times. As one of the groups most exposed to social exclusion, all factors that prevent disabled people from reintegrating into society should be eliminated or minimized. At this point, people with disabilities often face difficulties in establishing social relationships and maintaining connections with their communities (Sweet et al., 2020). Today, with the rise of information and communication technologies, the use of digital media for the participation and integration of disabled people in society is very important in terms of integration and adaptation to social life. If social integration is considered as a social skill, it can be understood how important and functional the use of digital media is for individuals with disabilities. As digital information has become the preferred mode of communication, digital media has become an emerging context for addressing attitudes towards disability. The values of participation in community life, autonomy, and human rights determined by the UN Convention on the Rights of Persons

with Disabilities are parallel to the participation of disabled people in the digital environment and social networks. Digital media allows people with disabilities to send information, interact with others, and create online communities based on their mutual interests, as with all other users. Digital media goes into the daily life activities of people with disabilities in terms of digital devices that support communication or orientation and new modes of access to society (Bühler & Pelka, 2014). This transfer of social routines to digital networks supports the participation of people with disabilities as certain restrictions are reduced and shapes their rights in such a way that they can exercise their rights in the same way as other people. In addition, digital media increases opportunities for people with disabilities to disseminate their words, stories, and views (Pearson & Trevisan, 2015). Participation of people with disabilities in digital media is increasing, especially in providing an informal dimension to conventional education and being actively involved in mainstream social media (Manca & Ferlino, 2016). Despite all these possibilities and opportunities, new technologies are still not fully accessible and are negligible for people with disabilities. As in real-life social exclusion, there is a division in the digital world, and social exclusion is reproduced in the digital lives of people with disabilities (Goggin et al., 2003). The reason for this is the lack of access to digital technologies and the production of digital media according to a certain user type. In other words, while digital media creates socially integrative possibilities, there is also the risk of reproducing exclusion. It is necessary to identify what causes inequalities in the use of digital media among different disability groups and how they can be overcome. In addition, the emergence of Covid-19, the change in most aspects of social life, and the high unpredictability have increased the need for solutions based on digital technologies to meet the access and service needs of individuals with disabilities.

3. METHOD

This study systematically identifies themes to discuss the barriers to the use of digital media by persons with disabilities and to create more research areas on this subject. For this review, a systematic literature review method about people with disabilities and digital media was used. A thematic framework has been developed to examine the factors limiting the use of digital media by individuals with disabilities and solutions for them. First, relevant search terms related to digital media and persons with disabilities were selected. An independent search using “digital media”, “person with disabilities”, and “AND” the boolean term in Web of Sciences, Scopus, and JSTOR databases was produced a total of 12,916 articles. In particular, thousands of articles in JSTOR searches showed that the relevance was not efficient enough and the research design was narrowed by removing JSTOR search results. In Scopus and Web of Sciences data results, when abstracts are examined, it was understood that there are many duplicate studies, and Web of Sciences search results find more precise and relevant articles. Secondly, the search was made in the Web of Science Core Collection database and included in the search articles, reviews, books, research reports, and proceedings in the sciences, social sciences, and arts. Blogs and web pages were excluded from this search. Search terms were searched in relation to the title, abstract, author keywords, and keywords plus of the studies. Search publication dates were limited to 1975-2021.

Authors	Article Title	Publication Year
Wrzesinska, MA; Tabala, K; Stecz, P	Gaming Behaviors among Polish Students with Visual Impairment	2021
Alathur, S; Kottakkunnummal, M; Chetty, N	Social media and disaster management: influencing e-participation content on disabilities	2020
Bosse, I; Renner, G; Wilkens, L	Social Media and Internet Use Patterns by Adolescents With Complex Communication Needs	2020
Cocq, C; Ljuslinder, K	Self-representations on social media. Reproducing and challenging discourses on disability	2020
Conway, M; Oppegaard, B; Hayes, T	Audio Description: Making Useful Maps for Blind and Visually Impaired People	2020
Iarskaia-Smirnova, E; Verbilovich, V	It's No Longer Taboo, is It? Stories of Intimate Citizenship of People with Disabilities in Today's Russian Public Sphere	2020
Newman, L; Browne-Yung, K; Raghavendra, P; Wood, D; Grace, E	Applying a critical approach to investigate barriers to digital inclusion and online social networking among young people with disabilities	2017
Haage, A; Bosse, IK	Media Use of Persons with Disabilities	2017
Pinchevski, A; Peters, JD	Autism and new media: Disability between technology and society	2016
Manca, S; Ferlino, L	Social Network Site Use by Persons with Disabilities: Results from an Italian Study	2016
Goggin, G	Communication rights and disability online: Policy and technology after the World Summit on the Information Society	2015
Buhler, C; Pelka, B	Empowerment by Digital Media of People with Disabilities Three Dimensions of Support	2014
Mechling, LC	Review of Twenty-First Century Portable Electronic Devices for Persons with Moderate Intellectual Disabilities and Autism Spectrum Disorders	2011
Al Sayed, S	E-Accessibility	2008

Table 1. Remained and examined studies

A total of 30 articles were read and reviewed. Of the 30 reviewed articles, 19 were articles, 9 were proceeding papers, 1 was book chapter, and 1 was review. When the remaining articles were reviewed, and articles not directly related to person with disabilities and digital media use were excluded, 14 studies

remained. Table 1 shows the remaining 14 studies. Common themes were identified by extracting and synthesizing these 14 studies.

4. RESULTS

As a result of categorical and systematic synthesis, the following three main themes came forward: accessibility, design, and participation.

4.1. Accessibility

Accessibility was the main theme found in 10 of the 14 studies overall. Here, accessibility refers to owning or using digital media tools. In the reviewed articles, the limitations in accessing these tools and the cost of hardware or software seem to be barriers to accessibility. This situation occurs more frequently during natural disasters and emergencies, and not all disabled groups safely have access to advanced technologies. Especially disabled people in rural areas use fewer digital applications than those living in urban areas (Wrzesinska, Tabala & Stecz, 2021). This situation is directly related to lack of open space, security situation, lifestyle, and access to computer or internet. On the other hand, people with disabilities often have little access to the latest technology due to different factors such as age, low income, or unfavorable living conditions. In addition, technical and social difficulties in the use of digital media affect the use of people with disabilities. Especially people with mental problems are not adequately supported in this context. People with intellectual disabilities are less likely to access digital devices than the general population, and they use digital devices less for communication and information (Haage & Bosse, 2017). For instance, many visually disabled people are offline. Digital media can offer greater access, especially to the visually, hearing, and physically disabled people (Ellis & Kent, 2015). Therefore, more effort is required offline as well as online. These individuals can continue to use digital media with some degree of online support. Therefore, new technological solutions to improve accessibility to digital media for this vulnerable group and their cost need to be considered. For example, software quality and efficiency of digital applications that require attention and efficiency, such as computer games, are very important. A significant proportion of visually disabled people tend to play excessive games (Wrzesinska, Tabala & Stecz, 2021). There are many problems with comfortably navigating different parts of the games and seeing all the content. These individuals gain very limited information by not being able to integrate visual elements. For these individuals to access the game service, more tactile and sound-based communication methods should be directed. In this context, the fact that visually disabled individuals access more passive leisure activities, are prone to social isolation, and generally spend less time with their peers can be reversed through digital media.

Disabled people experience vulnerability in education, employment, and health systems due to the exclusion caused by the lack of digital media infrastructure (Al Sayed, 2008). Investigating the experiences of individuals with disabilities in these matters in the digital age may enable the evaluation of the differences in the digital gap between society and people with disabilities. The main aim should be to facilitate the accessibility of technology and digital infrastructure for all as a means of economic and social integration. By creating global awareness in terms of digital media use, it should be sought how to provide the necessary conditions for disabled people to benefit from the same opportunities in digital life. First, the participation of individuals with educational disabilities in digital media and how they can benefit from the use of new media can be provided by non-traditional school education. They can use these educational activities for entertainment activities such as listening to music and watching videos on the Internet, communicating, and searching for information via email or chat. Thus, disabled individuals can establish more contact with their peers. Secondly, providing the necessary information and communication

technology devices, infrastructure, and software to people with disabilities will help them acquire knowledge about information and communication technology and so apply for suitable jobs in the electronic labor market. Finally, on health, the gaps in the actions of accessing basic electronic services such as e-learning and telehealth, obtaining information, doing sports, and being involved in social life should be filled. Access of disabled people to society, especially through social networks, contributes to the psychological health of disabled people (Valkenburg et al., 2006). However, it should be noted that excessive use of digital media can have negative effects on psychology or mental health. Moreover, the communication gap between normal and disabled people can be filled, whatever their special needs. In this regard, people with disabilities should be supported by international and regional disability public organizations such as the World Federation of the Deaf and the World Blind Union, and many specific types of stakeholders in certain places. With greater access, healthy behaviors regarding the use of new digital media can occur among people with and without disabilities.

4.2. Design

The content and design features of digital media do not motivate people with disabilities to be involved in the use of digital media. More content that supports the participation of people with disabilities in digital media should be produced, and a conscious (aware) design of digital media tools should be adopted. Digital media needs requirements to ensure a social capital-centered disability diversity (Alathur et al., 2021). The devices used by disabled individuals are basically required to provide independent access to the internet by design and enable disabled users to manage their own accounts in most digital applications. Focusing on infrastructure for the implementation of design principles for all (inclusive design) will enable the design of digital media tools that enhance the empowerment and social inclusion of people with disabilities (Manca & Ferlino, 2016). With this design character, digital media can be both a learning and a production tool. Persons with disabilities should be independent in arranging appointments, especially to receive public service over the Internet. Today, people with disabilities still need one-on-one assistance in logging and speaking in the digital environment. Usually, their parents or relatives read aloud the on-screen texts and relay basic internet content such as comments, photos, videos, games, statuses, and links. For example, being less dependent on family members and health personnel is one of the most important things for people with intellectual disabilities (Brereton et al., 2015). In order to eliminate this dependency problem, speech reading software to hear the text, faster typing of longer texts, independent online speaking and chatting, a speech device to watch videos independently, and devices that can play multiple games with others should be produced (Newman et al., 2017). It is known that people with intellectual disabilities can benefit greatly by using devices that contain these speech technologies, operate smart devices without touching them, and access information in the form of videos and pictures from the internet (Balasuriya et al., 2018). Talking with the devices as if they are talking to a person and the device's addressing and responding to them by their names provide many intellectual disabled individuals with a positive experience. In short, when developing these devices, the philosophy of "one size fits all" should be followed by universal design principles that can accommodate all users as much as possible without including commercial manufacturers, custom designs, or personalization (Cihak et al., 2010). In other words, it is necessary to be more sensitive to the needs of different disabled groups in the design of digital media tools. For instance, Hewett et al. (2014) found that iPads provide some advanced technical use standards for people with disabilities, but some aspects are extremely difficult to use for people with advanced visual impairment. By contrast with this, mobile phone use among visually impaired youth in Japan appears to be high (Watanabe et al., 2008). At this point, when producing picture-based and video-based systems in portable hand-held devices for people with disabilities, it is necessary to provide oral/audio (auditory) records, advanced handheld systems, multiple prompt levels on the screen, and various adjustment levels such as speed levels, image clusters, length of records (Mechling, 2011). Personal digital assistant (PDA),

which provides these features of digital media tools, should also have basic universal design principles such as voice recognition for reading information to the user, running applications and phone calls, video phone call, video playback, taking snapshots of text, and GPS providing pictorial, auditory, and video information systems (Gentry et al., 2008). For example, visually disabled people want to be able to use voice-defined maps to navigate independently in any area (Conway, Oppegaard & Hayes, 2020). Therefore, a very detailed navigation guide should be designed that allows disabled users to orient themselves according to their demands and control what they are listening to. In other words, navigation designed for one type of user should be adapted for visually disabled users, the use of electronic geolocation tools should be integrated, and ultimately a multi-layered audio map should be created. As in this example, if portable electronic devices with design features that support the diversity of physical and mental conditions of disabled people are produced, new living, working, and entertainment environments for disabled people can be created. As a result, determining the design principles and resources needed by different disabled groups in the use of digital media tools will increase the access of disabled individuals in the digital world. Although it is a very long-term process for individuals with certain types of disabilities to be able to go online independently, strong design methods will overcome the inequalities in the use of information and technology by different disabled groups of different ages.

4.3. Participation

Opportunities and places for people with disabilities to participate in the public sphere and contribute to social life are limited (Kafer, 2013). Disabled people cannot participate equally in digital media, which we can call virtual public space, like other people. People with disabilities need spaces where they can talk about their disability experiences and situations in their own words. There should be such spaces to portray people with disabilities not only as persons with a medical diagnosis but as social and political individuals. This is especially important for representing all aspects of living with a disability in digital media. For example, autistic people are seen as strangers in society (Pinchevski & Peters, 2016). The involvement of these people in the use of digital media means they have a voice in the public. This will enable a move away from the cultural prejudice against disability and the discrimination between us and them that dehumanizes people with disabilities. In particular, participation in social networks in the digital environment improves the sense of social belonging of disabled people and is very valuable as social support for disabled people (Viluckiene & Ruškus, 2017). Sharing stories and experiences on social networks in the digital age has shown the importance of knowing that people with disabilities are not alone and meeting people in similar situations. This has created a public space of support for people with disabilities and has led people with disabilities to build community by questioning stereotypes, prejudices, norms, and discourses about what it is like to live together. However, despite all these positive aspects, cultural expectations about how a body should appear, especially on social media, push people with disabilities to the situation of constantly comparing them with others and can lead to results such as self-hatred and self-harm (Cocq & Ljuslinder, 2020). While it is very important for disabled people to feel like human beings, thoughts about disabled people in popular culture and stigmatizing attitudes in society explain this situation. For instance, people with intellectual disabilities are stigmatized and isolated in internet-based social media applications (Jaeger, 2012). Lathouwers et al. (2009) revealed that parents of young people with disabilities are concerned about internet safety and think some people are abusive in online activities. As a result, people with disabilities seem to have low trust in online environments in digital media because of their skepticism about face-to-face rejection, isolation, and the painful experiences of physical disability (Annable, Goggin & Stienstra, 2007). However, Medjesky (2008) pointed out that digital media also creates different forms of relief from these difficulties, that people with physical disabilities have a strong desire and need to adopt and share disability narratives as part of their personality. In this regard, many users share a large and different amount of information and content,

especially on the Internet, and malicious content must be filtered from them. A recommendation system based on data mining can be introduced to social platforms to filter content. Despite all this bad content, people with disabilities who resist prejudices in society destroy and rebuild their identities, thoughts about their physical and mental appearance, and even their sexual identity (Iarskaia-Smirnova & Verbilovich, 2020). Persons with disabilities, like the rest of society, should use available technology, design, and content as a tool to fulfill, facilitate and diversify their actions.

5. CONCLUSION

Like all vulnerable groups, individuals with disabilities are exposed to social exclusion from various aspects throughout their lives. Digital media and related information and communication technologies are effective in reducing social barriers and creating new opportunities for people with disabilities. The use of digital media occupies an important place in the daily life of individuals with disabilities, but it also carries new risks in the context of social exclusion for individuals with disabilities. Opportunities provided by digital media, which are offered as a solution to eliminating barriers, can reinforce the invisibility of disabled people and their social exclusion. Discriminations and negativities experienced by disabled individuals, especially in accessing public spaces and public services, are also transferred to digital media. It is understood that disabled people are worried about using digital media and have more isolated environments due to prejudice. Actions related to not being ashamed or silent as a result of disabled people's own experience of living with a disability should be supported by digital media solutions. The progress of the digital space, with the support of social entrepreneurs and outreach organizations, could reveal new approaches to digital inclusion.

This study formulated research questions to discuss and evaluate the use of digital media by individuals with disabilities. These questions explore the factors that limit the disabled in the use of digital media and the solutions for them. In line with these questions, a systematic literature analysis was made, and a thematic framework was synthesized. In accordance with the method, people with disabilities and digital media were scanned in Web of Science, and the data were narrowed down and extracted. As a result of the examination of these studies, the following three main themes emerged: accessibility, design, and participation regarding the factors limiting the use of digital media and solutions for them. First of all, when we look at the accessibility limitations, online support for education, health, and work are inadequate. In addition, hardware and software quality, cost, and efficiency of digital media seem to be barriers to accessibility. Innovative technological solutions should be used in the communication methods of these tools, and they should appeal to more disabled people based on tactile and sound. In addition, individuals with disabilities should be supported by new social initiatives that create global and local awareness with high institutional capacities. Secondly, since digital media do not include diversity and conscious design features in design, individuals with disabilities cannot be included in digital media independently. Universal design principles that are compatible with different and various disabled user types should be established with the philosophy of one size fits all. Integrating the components needed by different disability groups into digital media will increase the participation of people with disabilities in the digital world and ensure social inclusion. Finally, in terms of participation, it is understood that people with disabilities cannot participate in digital media as equally as other people. The fact that people with disabilities experience negative experiences such as face-to-face rejection and isolation triggered by social prejudices in digital areas, as in real life, makes this participation insecure. Developing data mining technologies that will filter malicious content in this regard will facilitate the use of digital media by individuals with disabilities.

Future research should consider the physical, sensory, communicative, mental, and emotional barriers that create differences among persons with disabilities within the framework of the synthesized themes of

accessibility, design, and participation. These themes should be more diversified, and sub-themes should be constructed in more detail and with more work. In addition, people with disabilities who acquire a disability later in life should be compared with people with congenital disabilities, and their different digital media needs or patterns should be considered.

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LANDSCAPE PAINTING AS A TRIGGERING MEDIUM

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ABSTRACT

About three centuries before the landscape was defined “as perceived by people”; those who shaped the landscape were closely related to those who perceived and painted it on their canvas. With the environmental changes brought about by the industrial revolution in the eighteenth century and the rapid urbanization that followed, there was a growing longing for the rural and natural. As a result, landscape painting became a genre in the painting art of the period, depicting observed landscapes and serving as an essential source of inspiration for landscape practice. Gardens were perceived as “just like a landscape hung”, “landscape gardeners” created picturesque landscapes by observing and imitating nature, as landscape painters did. In these periods, landscape painting also was a trigger, a medium and also a driving factor for natural sciences such as sciences of plant, geology, and climate in the eighteenth and early nineteenth centuries which widespread years of romanticism. Considering all, with this study, it is aimed to contribute to the literature by reading about the transformation experienced in the eighteenth and nineteenth centuries, which is known to be a critical breaking point in the understanding of nature, landscape concept, and landscape practice, in the context of landscape painting in the historical process in these centuries and before. The study showed the landscape practice of the period was influenced by painting art, but landscape painting also influenced the natural sciences and played an essential role in their development. Considering that natural sciences are excessively effective factors in the formation of the intellectual and practical basis of landscape architecture today, landscape architecture reached its current state with much more complex relations and processes rather than direct interaction with landscape painting at that time as thought.

INTRODUCTION

From past to present, humanity's understanding of nature has been shaped by social, economic and environmental factors and art has always had an essential place in reading the changing perceptions. It has been possible to understand the relationships that establish with their natural environment through art, throughout history first in the descriptions on the cave wall, then in the illustrations on the canvases and even in the interventions made in the natural environment. In fact, in England in the eighteenth century, a strong relationship emerged between how nature was the subject of painting and the formation of landscapes. With this study, it is aimed to contribute to the literature by reading about the transformation experienced in the eighteenth and nineteenth centuries, which is known to be a critical breaking point in the understanding of nature, landscape concept, and landscape practice, in the context of landscape painting in the historical process in these centuries and before.

HISTORICAL PROCESS OF LANDSCAPE IN PAINTING

In the process until the emergence of landscape as a genre in painting, nature's being/not being a subject in painting, and periodical socio-cultural changes, the relationship of human with the natural environment definitely has a deep interaction. The definition of "sensuous expression of the soul" made for art by many suggested that there is a linear relationship between the soul and the form of expression, in this context, it was possible to see clearer expressions in the following processes, while uncertainty and abstract expressions were dominant in the early stages of civilization (Bryant, 1882).

In prehistoric times, human was in the dominion of natural environment and placed nature in a divine position. In fact, this fear-accompanied sanctification was a state of obscurity. Human, who has the ability to define within the scope of knowledge, had placed natural environment in an exalted position until human created a "tamed" area through agriculture. Even with agricultural life, "wild" nature still existed for humanity as something that was defined by divine expressions. They depicted strong animal figures or striking natural events as the subject of the painting (Figure 1). While the images mostly consisted of "natural" elements, these images had a powerful, divine place in the minds of the people of the period. Gombrich (2017) thought that there was a "belief in the power of images" in the painting approach of prehistoric time period. Bryant described the development process of landscape painting thought in 1882, with the first stage being "*eastern and completely ordinary*", the following process "*belonging to the classical Greek world and completely mythological*" and finally "*the modern period, in which the poetic approach dominated and landscape painting acquired a highly rational meaning and entered its highest development*." In this context, the nature expressions of the Egyptians, which are the counterpart of the first stage, were created as visuals that do not have a holistic view, but where everything is processed down to the smallest detail and brought together as singular. Gombrich (2017) emphasized that while all elements were depicted, the most decisive angle was preferred for each, and stated in his work "Nebamun's Garden" (Figure 2) that in order to do this, the livings were drawn from the angles that would best express their characteristics. In these years, the painting was mostly tomb paintings depicting daily life, certain images and victories, as Bryant stated.

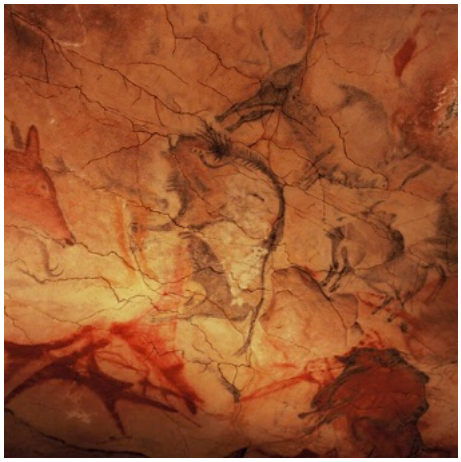


Figure 1 (Left). Bison, Altamira Spain, BC 15.000-10.000 (URL1). Figure 2(Right). The Garden of Nebamun, 1350 BC (URL2).

In Ancient Greece, works centered on human life, as a reflection of the human-centered perspective rather than visual representations of nature, were at the forefront. Gombrich (2017) stated that it is possible to see landscape painting in Hellenistic wall paintings (Figure 3). However, ancient landscape paintings were not "mirrors reflecting every unknown corner of nature" (Gombrich, 2017).

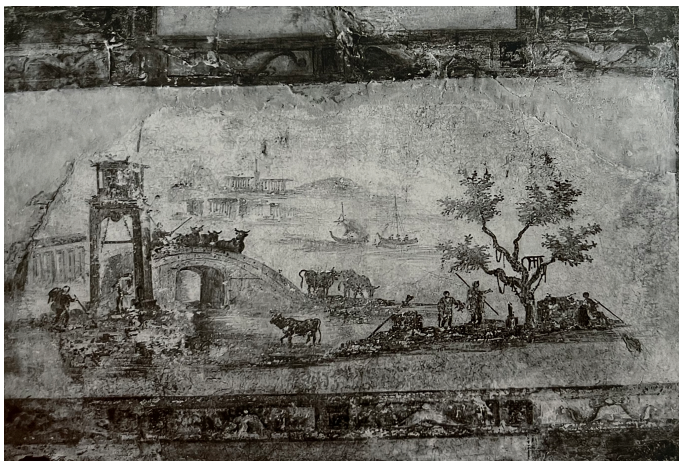


Figure 3. Landscape, Villa Albani Rome, Italy 1st c. AC (Gombrich, 2007, pp. 114).

It has been possible to read this uncertainty in their minds in their art as well. Hurwit (1991) reported that the Greek view of nature had a "myopic" view that ignored distances and scale. Visual expressions of victories and powerful figures in Western civilizations developed. While natural elements took place in the background, unrealistic images were created mostly in terms of ratio-proportion and perspective. In all ancient civilizations from Egypt to Greece, the living and divine nature was the only common thought (Bryant, 1882). With the dominance of the church in the Dark Ages, there were extremely stagnant years in terms of understanding and representing of nature, in which religious narratives, which became the dominant approach in art, were depicted with plain and gilded backgrounds. As the centuries continued in this way, in the darkness of the Middle Ages, around the 13th-14th centuries, Italian painter Giotto di Bondone emerged as an important figure that led to an awakening in the art of painting, opening a new page by expressing religious narratives with the earth and landscapes instead of the gilded background

(Figure 4). This innovative approach of his has been used all over the world over the years (Gombrich, 2017) (Bryant, 1882).

In the renaissance period, when the dominant approach was humanism, the representations of nature started to exist as a background with the minds that started to question. Even if human looks with questioning eyes, since the Renaissance period thought has an anthropocentric approach, it tried to dominate its natural environment, which it had deified before, and it was possible to see this situation in the landscape practices of that and the following period (Figure 5), which were the times when the landscape turned into a show of power.

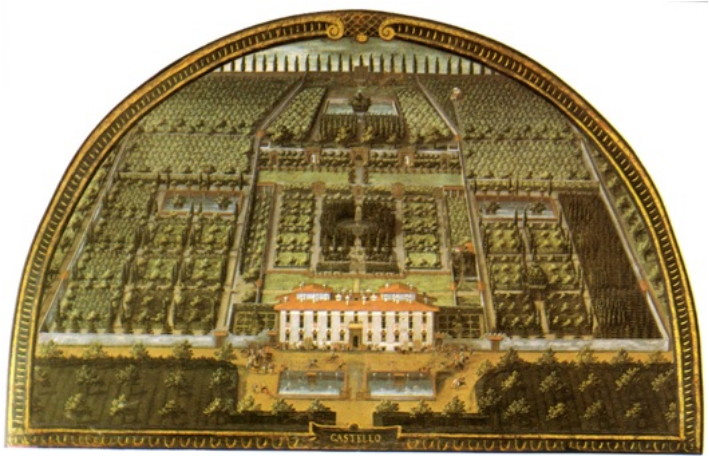


Figure 4 (Left). Giotto di Bondone, Crucifixion, 1330 AC (URL 3). Figure 5 (Right). Giusto Utens , Villa Medici Castello, 1599 AC (URL 4).

In these periods, under the influence of the reform movements, artists in the north of Europe, who tended to subjects other than religious narrative in painting, made attempts to paint them in a very realistic language by observing nature. While the discovery of perspective in the fourteenth and fifteenth centuries made possible the mathematical view of the act of "*seeing*", geographical discoveries revealed that there are many unknowns waiting to be discovered in nature. Even though landscape was not a genre in these years, it was known as a period in which elements of nature were depicted. In the sixteenth and seventeenth centuries, with the liberation of thought and the acquisition of a rational perspective, the necessary ground was established for landscape painting to appear on the stage of history as a genre.

The depiction of the landscape in paintings spread only in the north during the Renaissance period, remaining as a background in Italy, and was often not recognized as a separate genre. In addition, landscape painting without religious narrative became widespread in the north of Europe in the sixteenth century, with the influence of the "paganism" interpretations that developed against religious paintings after the Protestant Revolution.

They produced sections of didactic representations of agricultural life which were instructive illustrations to describe the seasonal works of peasants, realistic depictions of nature, illustrated by direct observation, and rural paintings depicting peasant life with powerful figures. Mitchell (2002) stated that the main purpose of the change from "obedience to liberation", "order to nature" is "unifying nature in the representation and perception of landscape".

Figure 6. Pieter Bruegel the Elder, The Harvesters, 1565 AC (URL 5).

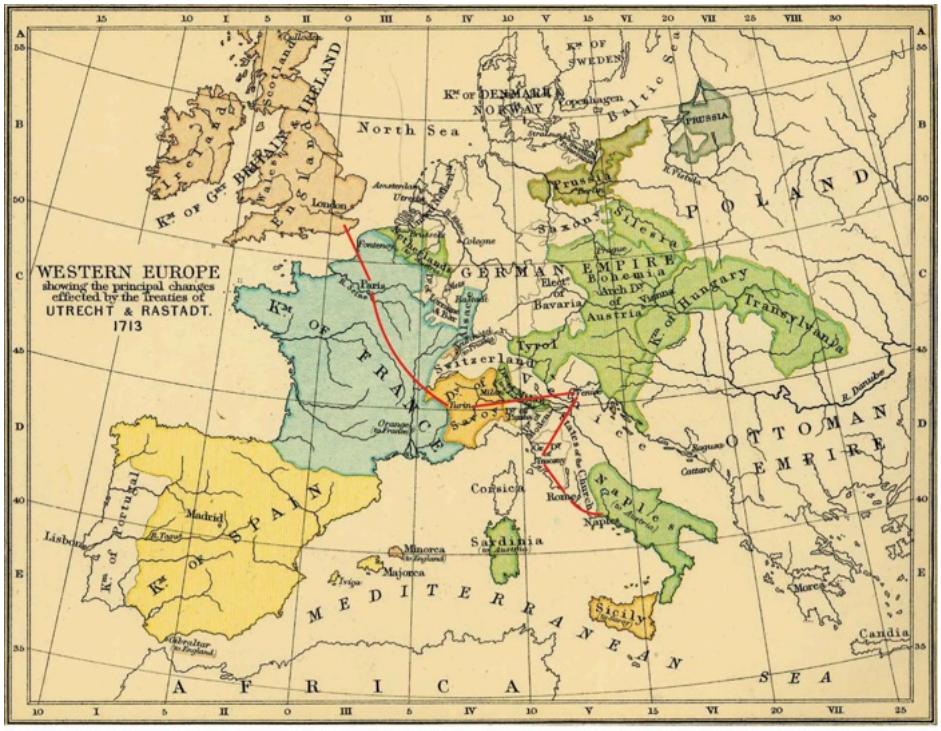
On the other hand, Rome, where the whole city was a school for the art of painting, had become a center of attraction for painters on the continent and the island. In these periods, "northern realists" spread their approach to the places they went and Italy had been the head of these places. In 17th century, Claude Lorrain and Nicolas Poussin, the French names who came to Italy, acquired the influence of the northern tradition through the masters they worked with in their atelier, while they created modern landscape paintings that they brought together the natural environments, they were affected by their daily life, in compositions, they constructed with their imaginations and created a crucial turning point in history.

Figure 7. Claude Lorrain, Landscape with Nymph and Satyr Dancing, 1641 AC (URL 6).

PICTURED AND PICTORIAL LANDSCAPE: 18TH-19TH CENTURY ENGLAND

The emergence and shaping of landscape as a genre were highly related to the social, political and economic changes of art and land in the historical process. Many aforementioned reasons, such as the discourses of religious officials on painting, rapidly growing cities, and the changing counterparts of owning land in societies, had been influential in the transformation of the understanding of nature and the emergence of landscape as a genre.

England had a libertarian environment after the civil war and revolution it survived. Eighteenth-century, it was ahead of industrialization and was in a supportive position in terms of scientific developments. In this way, it became an attractive location for the artists of the period, attracting many artists from the northern Europe and Italy. Therefore, increasing environmental pollution with the industrialization that has taken England under its influence has created a new perspective on the understanding of nature. Additionally, while the aesthetic understanding of the period has changed, the art of painting and the painter have come to a rising position in society, and having intellectual capacity has become an important status determinant for the wealthy part of society. Bourgeois in need of cultural development had gone to the Grand Tour, known as the great culture-art tour that includes Italy and France (Figure 8).



Wikimedia, Courtesy Of University Of Texas

Figure 8. Map of Grand Tour (URL 7).

It was known that Claude, Poussin, and Rosa paintings were among the many works of art brought to England with the Grand Tour. This tour had an important place in bringing the understanding of nature, which had gained a new dimension in Italy, which has moved from Northern Europe to Italy, to England. It seems possible to directly read through English landscape gardens the understanding of nature and its relationship with painting on the libertarian environment formed as a result of the political structure of the England of the period, the power relations established with the land, and the perceptions that have transformed positively in the name of art. Landowners and wealthy people wanted the landscapes they saw in the paintings to become reality in their gardens. Landscape gardeners such as William Kent, Capability Brown, Humphry Repton and Henry Hoare created landscapes in certain frames (Figure 9) (Figure 10). The "pictorial" landscapes, inspired by the paintings, have been an important turning point in the understanding of nature. It is possible to see the effort of understanding nature to get closer to the natural, albeit superficially, in the landscape gardens of this period.

Figure 9(Left). Claude Lorrain, Landscape with Aeneas at Delos, 1672 AC (URL 8). Figure 10(Right). View of the Garden Stourhead, Henry Hoare, 1725-60 AC (URL 9).

Regardless of the extent of the intervention to the natural environment, the effort to appear "as if it were natural" and to turn the framed nature pictures into reality has been one of the most fundamental thresholds in the transformation of understanding. In the following years, the superficiality of the understanding of nature found the opportunity to deepen through landscape painters who began to observe the natural environment like an explorer. With the rapid urbanization and increasing environmental pollution, landscape painters have come to an important position in defining the understanding of nature. A new sensitivity has been added to the rational and human-centered perspective of man, and his view of nature has begun to differentiate. It was possible to see this situation in the works of romantic painters of the period such as John Constable and William Turner (Figure 11) (Figure 12). The scientists and landscape painters of the period were in similar observer positions. British Landscape Gardening had also begun to include these sensitivities and expand its scope, and has spread to the world by going beyond the borders.

Figure 11 (Left). John Constable, Stratford Mill, 1820 AC (URL 10). Figure 12 (Right). J.M. William Turner, Rain, Steam, and Speed - The Great Western Railway, 1838 AC (URL 11).

CONCLUSION

In conclusion, it can be said landscape painting and landscape practice had interactions in-between. It has been possible to say that the artists contributed to the development process of natural sciences with their new nature observer-explorer position. Landscape painting has a key place in reading humanity's perception of nature throughout history. It is possible to understand the changing and transforming understanding with the place where nature finds itself in painting and the way it is portrayed. In the period, which was an important breaking point in terms of certain social and environmental factors, landscape painting had existed as a triggering medium in reconsidering the relations with nature among many socio-cultural, economic and environmental factors. Art, which has been a tool to express the feelings and thoughts of humanity throughout history, has been an important driving factor in shaping this relationship, especially in the 18th and 19th century England, as well as providing the opportunity to read the relations with nature. With its active role in the progress of natural sciences to become modern sciences, it has prepared the necessary environment for landscape architecture's definition in today's sense, just as landscape painting brings the line of landscape architecture closer to the natural.

ACKNOWLEDGEMENT

This study was developed from the thesis with the same name, which is being worked on under the consultancy of Assoc. Prof. Ebru Erbaş Gürler, within the scope of ITU Landscape Architecture graduate program.

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URL6:https://upload.wikimedia.org/wikipedia/commons/f/f1/Claude_Lorrain_-_Landscape_with_Nymph_and_Satyr_Dancing_-_Google_Art_Project.jpg

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TO INVESTIGATE THE WATER TOPOLOGY OF ISTANBUL CITY: A FRAMEWORK ON THE WATER-CITY RELATIONSHIP

GİZEM ALUÇLU, MELTEM ERDEM KAYA.

Gizem Aluçlu, Istanbul Technical University, **Meltem Erdem Kaya,** Prof. Dr., Istanbul Technical University.

ABSTRACT

Water, one of the fundamental components of ecosystems, can act as a corridor in its flow or become an area that provides a significant habitat by accumulating. It also shaped the landforms and is directed by the landforms while affecting the foundations of the cities. Water has influenced them throughout history, as it is an integral part of the ecosystem that flows and accumulates. They have transformed water in the axis of their development in this double-edged interaction. Today, due to the fluid and resilient potential of water against destruction, a planning necessity arises. Based on this need, the concept of 'water topology' aims to understand the organized and connected parts of the relationship between water and the city. Instead of a linear reading method, it follows the processual reading and understanding philosophy of the topological nexus. This research examines the water topology of Istanbul, a city with dramatic topographical features compared to many cities established on the edge of the water, to discuss the framework for the urban water relation of Istanbul City.

In this context, the topology of water requires a multidimensional analysis at three different scales: macro, micro, and managerial. After a thorough examination of the relationship between the city and its water systems through an extensive literature review, it is conducted an urban history reading of Istanbul, which has a rich history of water systems and city plans developed in accordance with its topography. It identified micro, macro, and managerial scale contexts specific to each historical period and uncovered the water links from individual water structures to urban-scale water systems. By comparing existing data based on geographic information systems, and overlaying historical city plans and maps, it is obtained a synthesis of Istanbul's water topology. Through this approach, it is developed a topology model that highlights the multidimensional and multi-scalar story of water throughout urban history. In further studies, the created reading method will serve as the foundation for constructing a water topology system model.

Keywords: Istanbul, landscape, water-city relationship, water topology, water management

INTRODUCTION

Water flows, accumulates, and changes. Water is fluid. Water, which always has the property of sprouting, is seen as the source of all existence in the world and contains the potential of all forms in the whole of its relations. People are aware that they cannot exist without water. However, the human relationship with water is based on a more reciprocal approach. While water characterizes the existence of human beings, humans also reveal the potential of water. Thales, who is accepted as the first philosopher in the Western tradition from the ancient city of Miletus, declared that the whole world consists of water (Linton, 2010). Water, which is vital for all life forms, not only covers 4/5 of the world but also plays an important role in many areas from the organism scale to the planetary scale. Given the role of water in the continuation of life and its global ubiquity, access to drinking water is thought to be simple, but human societies have continually faced various challenges in supplying and transporting water (Miller, 2015). Linton (2010) treats water as a process rather than an object and defines this 'water process' as a process in which every unique property of water is abstracted, including the scientific foundations starting from the study of the elements that make up water. In addition to considering water as a process, an integrative landscape-based framework needs to be defined in contemporary planning and design approaches (Hill, 2009). Based on this need, the concept of 'water topology' aims to understand the organized and connected parts of the relationship between water and the city. Instead of a linear reading method, it follows the processual reading and understanding philosophy of the topological nexus. The concept of water topology has been developed as a re-reading method in order to examine the topological relationship between the city and water in depth at macro, micro, and managerial scales, and to discuss conceptually the multidimensional relationship between all these scales. The research follows 3 phases to define the water topology of Istanbul City (Figure 1). The first one is to determine the topological relation between water and the city. The second one is to define the water topology. The last one is to control the method in the Istanbul case. The first phase includes three aims such as defining the water-city relationship throughout history, urban water term, and water management term through a deep literature review. The second phase follows a discourse analysis after defining the topology term by literature review. The third phase follows a case study method via software, mapping, and conceptual mapping tools (Figure 2).

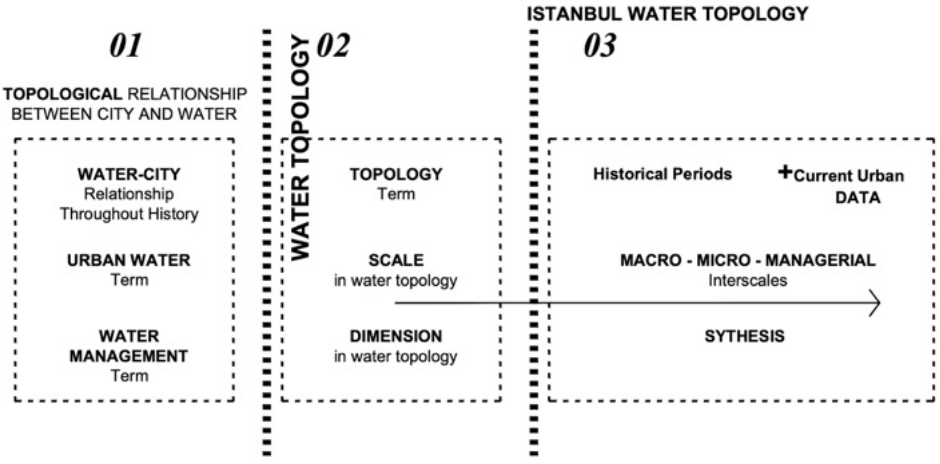

Figure 1. Structure of the research.

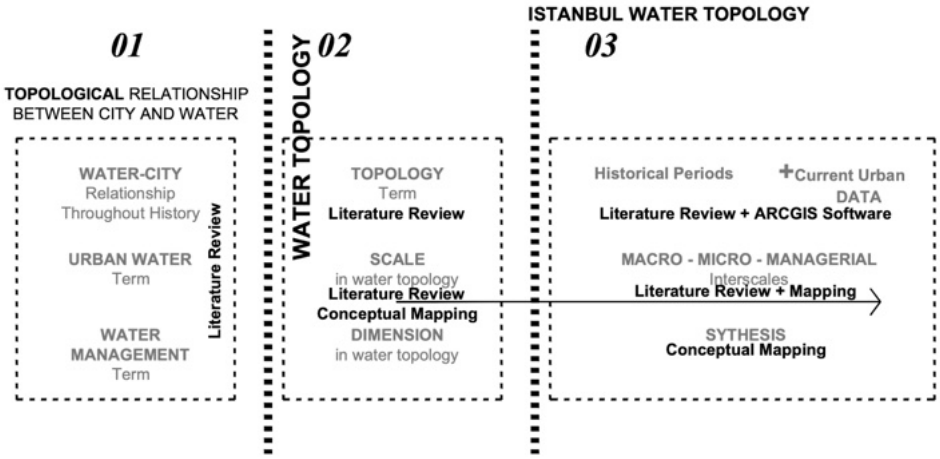

Figure 2. Methodology of the research.

THE CITY-WATER RELATIONSHIP THROUGHOUT HISTORY

According to Mumford (2019), springs that are always surrounded by water and navigable areas due to the river or swamp nearby, hilltops, and riverbanks rich in fish and shellfish have been the areas chosen by people to create their principal settlements. Likewise, it was emphasized that the oldest cities emerged in large river valleys such as the Nile, Tigris-Euphrates, and Indus. After access to the labor force necessary for the construction of the cisterns that provide water during the dry seasons, large settlements could be created in the arid areas. Human's relationship with the settlement is defined by two reciprocal actions: settling and movement. With these actions, human beings have clearly shared common spaces with many living species, especially with their social life tendency. The shelter form of humans, which started with camps, primitive shelters, and caves, later evolved into villages and holy places and eventually turned into cities. So much so that the relationship between water and human started in the middle of these settlement and movement actions.

With the establishment of the cities, various civilizations have emerged in the process that has passed until today, and the relations between these civilizations were mostly provided by water. The developing city remained under the dominance of various civilizations throughout its existence and added the cultural facts of these civilizations to itself. These cultural phenomena have emerged in various periods throughout the history of the city. When the city's relationship with water is questioned, the Roman Period should be especially emphasized. Many different water structures and technologies developed in the context of water, such as waterways, aqueducts, and fountains, can be listed as important developments that the Romans contributed to the relationship between water and the city.

In contemporary approaches, the relationship of the city with water is read through the concepts of the coast and the urban coast. The current water-city relationship, which describes a spatial bond between water and settlement, differs in approach in various cities. Erkök (2002) divided coastal cities into three main classifications based on their geographical locations: riverside cities, seaside cities, and cities associated with rivers and seas (Figure 3).

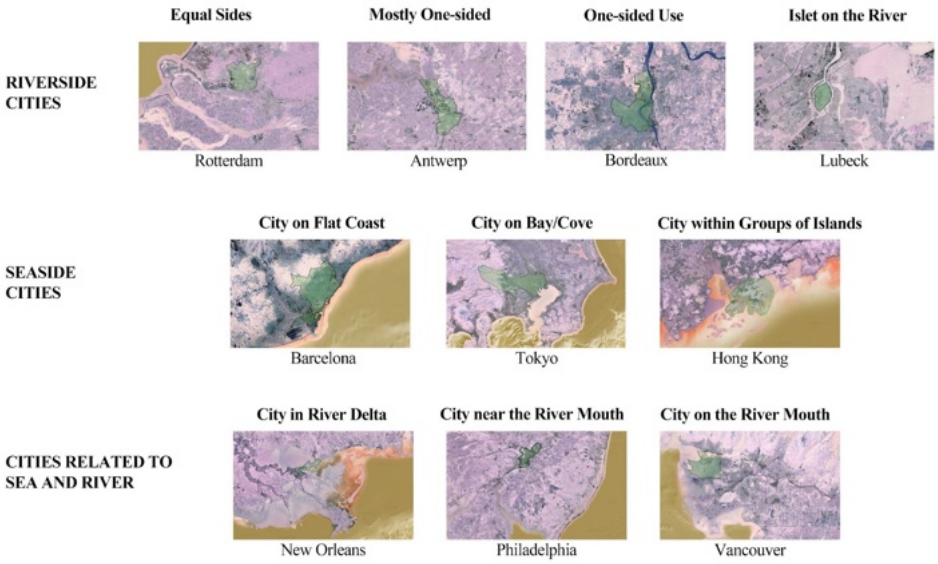

Figure 3. Settlement types of coastal cities (Erkök, 2002).

The role of water in its relationship with the city, from the settlement of the city to the development of the city, has been guiding, inclusive and progressive. The process that started with a city's access to water continued with zoning plans that progressed depending on the topography, and although theories about avoiding water were followed for a while, today there are extensive theories and practices of moving with water with the aim of using the water cycle effectively. These theories and practices have become contemporary design issues of the landscape architecture discipline. While this relationship of water with the city is read and reinterpreted by the discipline, the discipline becomes open to development thanks to this relationship. Therefore, it can be said that there is a reciprocal and cumulative relationship with high development potential between the water-city relationship and the discipline of landscape architecture.

URBAN WATER

Urban water is defined as all water resources occurring around the city. These resources include natural surface water, groundwater, potable water, sewage and other wastewater, stormwater, flood services, and techniques used for water recycling (eg harvesting, sewage mining, managed aquifer recharge, etc.). In addition, various techniques, water-sensitive urban design techniques, and environmentally friendly methods such as protecting natural wetlands, waterways, and estuaries are used to increase water use efficiency and reduce demand (Western Australian Government, Department of Water, 2022). The Environmental Protection Agency (2023) considers urban water as a cycle that connects individuals to local waterways and encourages them to participate in restoration efforts and supports it as a direct cycle of transformation (Summary of the Clean Water Act | US EPA, 2022). Also, based on urban water, concepts such as urban water use, basin, and rainwater also emerge.

As seen in the urban water system diagram (De Graaf, 2009; Van de Ven, 2006) (Figure 4), the water flow creates a water chain and water system areas in urban and rural areas in the settlement. In this system diagram, concepts such as urban surface water, runoff, paved-unpaved areas, and groundwater emerge. Drainage, capillary flow, and supply have taken their place as important concepts that show their effects on urban water flow.

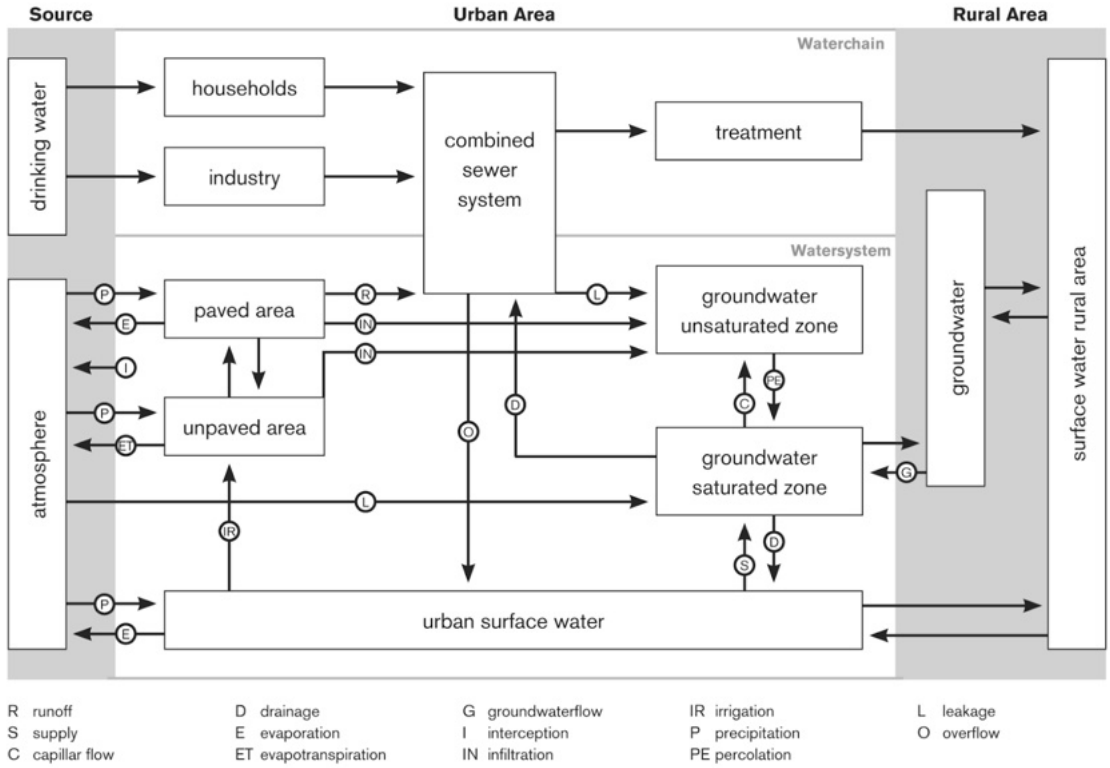

Figure 4. Urban water system diagram (De Graaf, 2009; Van de Ven, 2006)

With climate change, cities have begun to face more disasters such as drought and floods. This effect of climate change on the landscape creates a situation open to the reinterpretation of the relationship of water with the city along with resilience, which is defined as the capacity of a system to absorb a problem and still maintain its basic functional structure, as emphasized by Walker and Salt (2012) in their book 'Resilience Thinking'. With the landscape architecture discipline, the situation that has become more of an agenda topic reveals the necessity of reading about the development of urban water.

WATER MANAGEMENT

Urban water management is a complex water flow system that requires separation between stormwater, drinking water, wastewater, groundwater, and surface water. With the developments in the 19th century, the transition from agriculture and trade to an industrial system brought about an increase in population in urban areas. The most important innovation of this period was to see the separation of drinking water and wastewater as an urban water system. After the Second World War, 75% of the cities were rapidly rebuilt in the post-war period. With the pressure on urban water systems caused by climate change, sustained economic development has become important for raising living standards. Permanent urbanization has increased risks such as flooding, with the society showing an attitude against accepting risks (Hooimeijer, 2014). Urban water management aims to create resilient, livable, and sustainable cities and facilitates the integration of water factors by taking into account the total water cycle, benefiting society, the economy, and the environment. This situation encourages the government and industry to implement water management and urban planning. Urban water management has five main objectives: to support water security by using water resources efficiently, to ensure the continuity of waterways and

wetlands, to reduce the risk of flooding, to create public and private spaces that collect water, clean and recycle it, and to provide water for a productive, sustainable and livable society (Department of Water Environmental Regulation, n.d.).

The 'urban water transitions framework' (Figure 5) produced by Brown et al. (2008) shows how urban water transition policies evolve in line with cumulative socio-political factors on a macro scale. The framework, which is based on the temporal, ideological, and technological transitions of cities, deals with the process from water supply to the concept of water sensitive city in Australia. The Water Supply City aimed to effectively provide safe water resources against the increasing urban population in the early 1800s. In this period, while a large amount of water was supplied to the city center by dams and pipe systems for central urban water supply planning, construction, and management, these systems developed as a public right of unlimited fresh water access. The Sewered City, which emerged in the mid-1800s with public health concerns, includes a sewer system that diverts wastewater out of the city, following the renovation of the combined sewer system in London. From the end of the 19th century, separate stormwater drainage and sewerage systems began to be built in American and Australian cities. Drained Cities, which emerged in the mid-1900s after the Second World War, aimed to design techniques that enable the transportation of rainwater through various waterways in cities, after the international emergence of the new discipline of urban hydrology in the 1960s. Many waterways were taken underground and rivers were channeled during this period. In the late 1960s, with the emergence of the 'environmental' movement, concern about the deterioration of waterways and increasing demand for green open space came to the fore. The processes from the reduction of pollutants in waterways to the inclusion of water in planning functions have created Waterway Cities. During this period, new roles emerged, such as the protection of wetlands against pollution or the development of bio-filtration systems. Despite these innovations, stormwater management has faced insoluble obstacles, especially in terms of operation and finance. Water Cycle Cities, on the other hand, have created a water cycle management consisting of various actors working together, private and public, based on the experimentation of researchers and practitioners in the context of the water cycle approach and the acceptance of the current situation. In the contemporary city, an atmosphere in which Water Sensitive Cities balance environmental restoration and protection, integrating concepts such as flood control, public health, livability, and economic sustainability is mentioned.

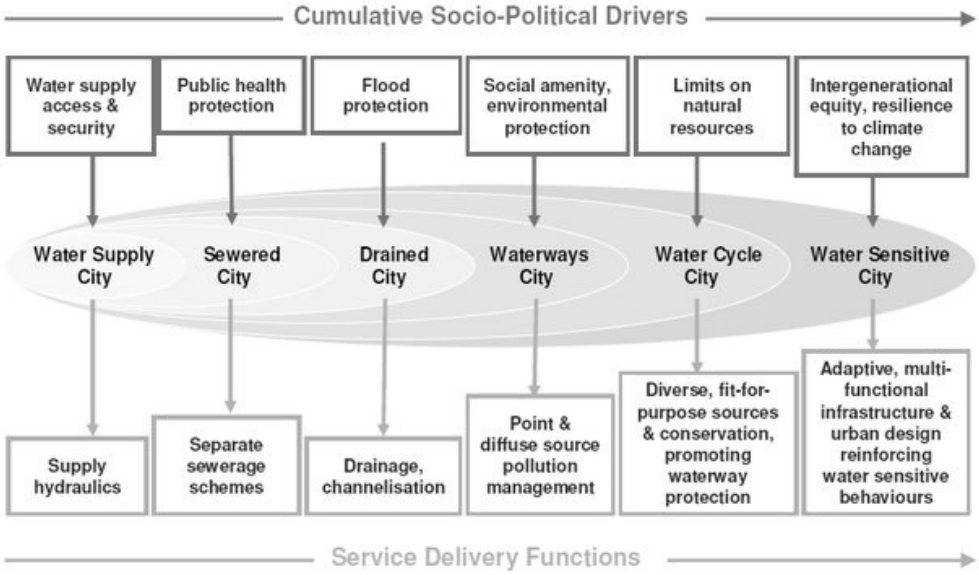

Figure 5. Urban water transition framework (Brown vd., 2008).

TOPOLOGY

Topology is based on the relationality of different concepts to each other. In various dictionaries such as Oxford and Cambridge, topology is defined as the way in which the parts of a thing are arranged and related (URL-1; URL-2), while the state of topology is defined as the relationship regarding the way the parts are arranged or connected (URL-3) (Table 1). Christophe Girot (2012), who first associated topology with the discipline of landscape architecture, defines topology as an abstract concept that primarily determines the continuity of the surface. Girot states that topology in Mathematics is generally defined as the proximity and the existence of ordered spatial relationships between surface structures, and also mentions that landscape is perceived as a cognitive, poetic, and sensory existing place for people, as well as being perceived scientifically on the basis of a functional normative network or an ecological system. He believes that topology can expand today's narrow landscape perception and states that topology covers all continuity and complexity, creating a special land intelligence and landscape wisdom embedded in the intrinsic value of the common area. He states that topology provides a continuum that provides insight and potential to people as they develop solutions, and creates a set of disciplinary tools that respond to this constant terrain situation. While he states that there is not yet an iconic project that can set an example for topology in landscape designs, he redefines topology as the highly correlated cohesion between objects and people and emphasizes the way a tree meets the earth or the sound of water on a stone as it flows to describe this cohesion. In design, the topology is defined as "the theoretical position and practical method of designing contemporary landscapes" by Girot in 2012 by creating a cross-section from all these definitions (Girot et al., 2012).

topology	the way the parts of something are arranged and related	(*Oxford English Dictionary*) URL-1
topology	the way the parts of something are organized or connected	(*Cambridge Dictionary) URL-2*
topological	relating to the way the parts of something are organized or connected	(*Cambridge Dictionary) URL-3*

Table 1. Definitions of topology term.

WATER TOPOLOGY

Historical reading requires a linear form of reading. The relation between linear reading and historical events cannot be grasped. At this point, the difference between the history of water and the story of water is reflected in the water topology. While the history of water follows a linear narrative method, the memory

of water is about the story of water. For this reason, it is necessary to read the story of water through the memory of water, together with other parts affected by the events that occur at every moment throughout the historical process (Figure 6). Water memory enables the stories that water has accumulated throughout history to be read in the form of multidimensional memory rather than the accumulation form, and the relationships between these stories are revealed spatially.

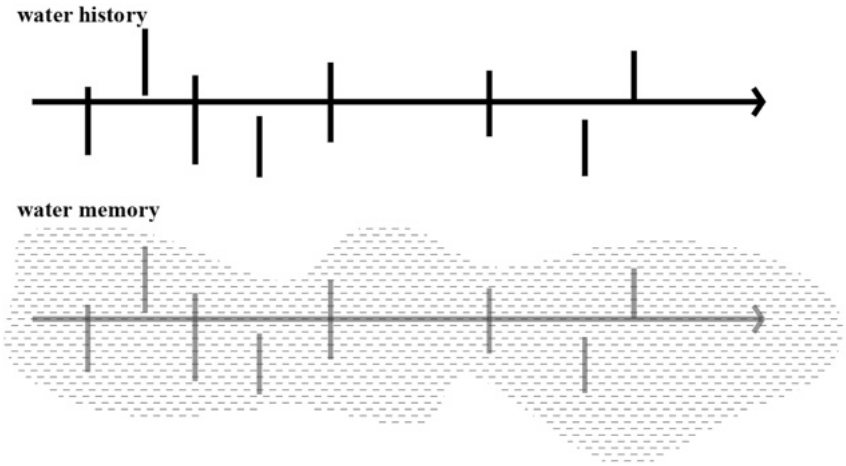

Figure 6. Water history and water memory,

As a result, water topology is a holistic memory system that is formed by the multidimensional parts of the story of water with the city and people, coming together in the historical process. With this system, the unique meaning of each word that writes these stories is handled in the process and it is aimed to reveal the invisible relationships within the meaningful whole that the stories come together. Water topology, unlike today's practices, presents a reading method that aims to read water as partly, holistically, pointwise, and in a process. The method enables to reveal of multi-scale relationships, including macro, micro, and managerial, in a multidimensional way. Therefore, first of all, it is necessary to define the scale and size definitions and boundaries in the holistic matrix of water topology.

SCALE IN WATER TOPOLOGY

The transition between the scales of the Landscape Architecture discipline to perceive a land and the ability to analyze it at different scales is very critical for the analysis of water topology. Throughout the historical layer, systems of very different sizes appear in the city, from water structures to water basins, when compared to the human scale. In order for these systems to reach cycles that express a whole, it becomes important to evaluate each element at the required scale. For this reason, water topology is analyzed in three different scales as macro, micro, and managerial.

On the macro scale, it can be seen the scale of the urban macro form can change through history. In Istanbul case, the macro scale begins with the ports and urban boundaries. Today, it continues with basins, urban periphery, and urban sprawl (Figure 7). On the micro-scale, the process that started with soil swales in the prehistoric period continued with water structures and harbors. The transformation of water structures into water systems followed this process. Today, the micro-scale includes concepts such as sub-basins, micro-urban spaces, and permeability terms (Figure 8). On the managerial scale, the water topology, which started with the flood laws and continued with the trade agreements, was highly affected by the cultural

effects of the administrators. Today, concepts such as the right to water, water management, water action plans, and basin atlases have taken their place at the managerial scale (Figure 9).

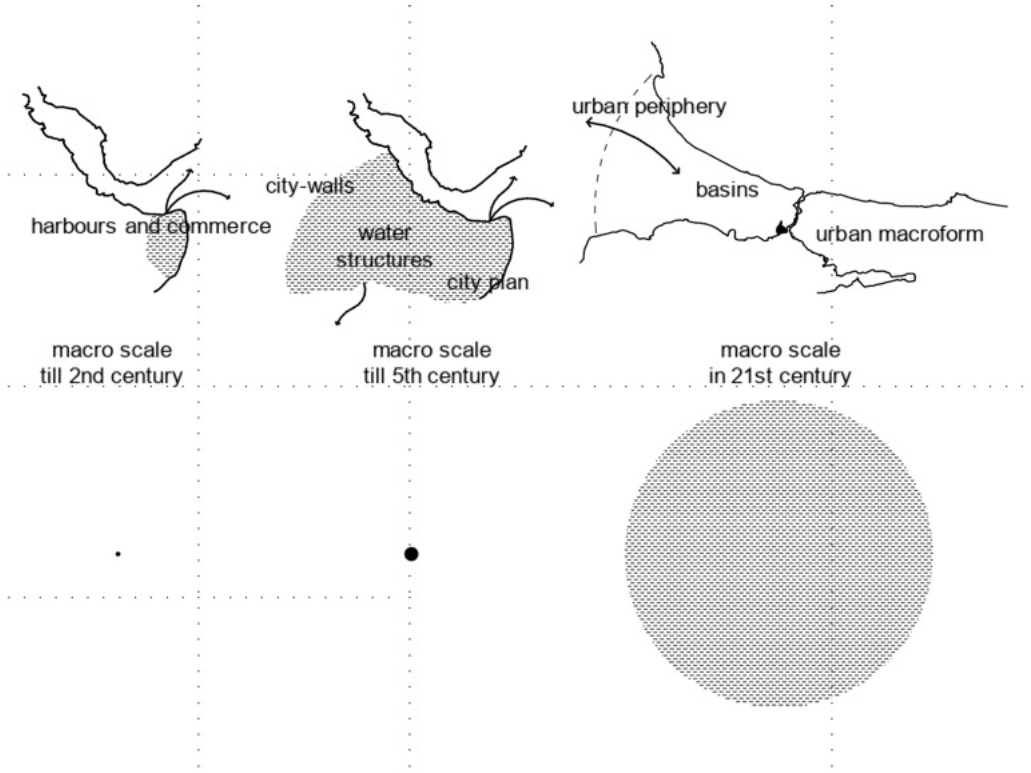

Figure 7. The macro-scale of Istanbul water topology.

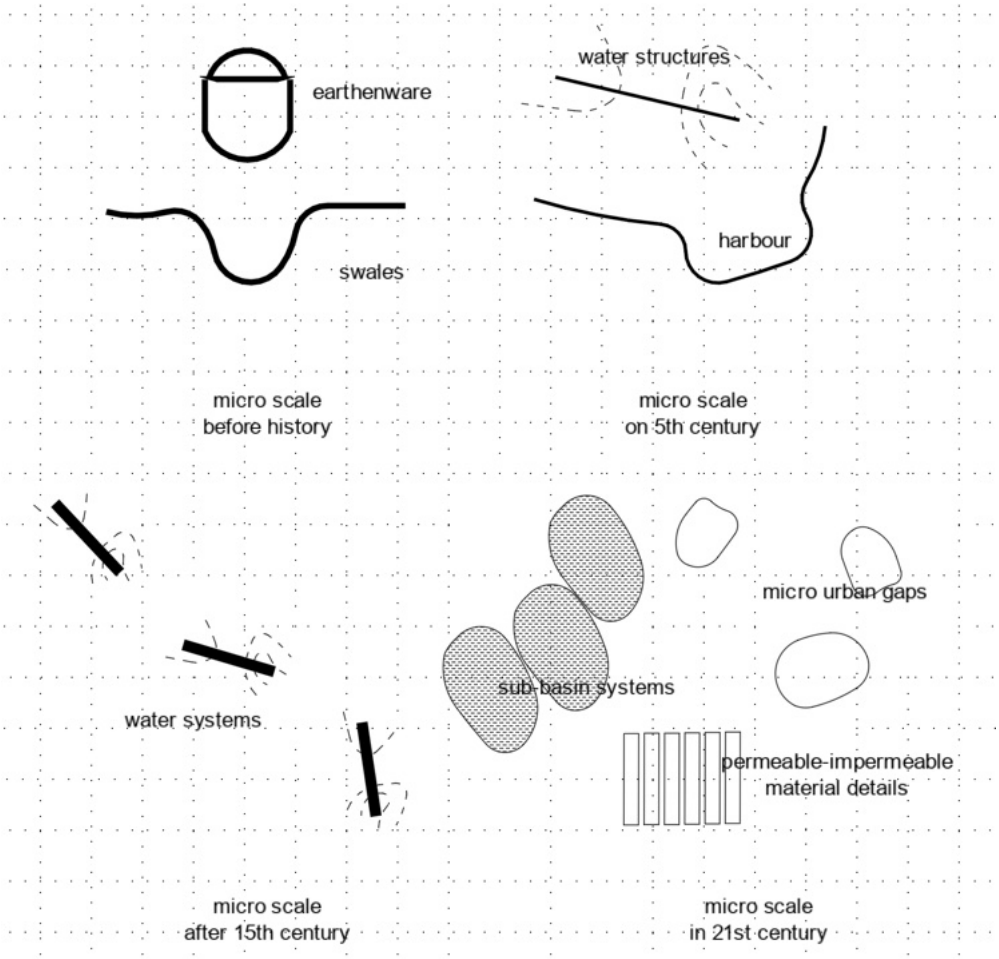

Figure 8. The micro-scale of Istanbul water topology.

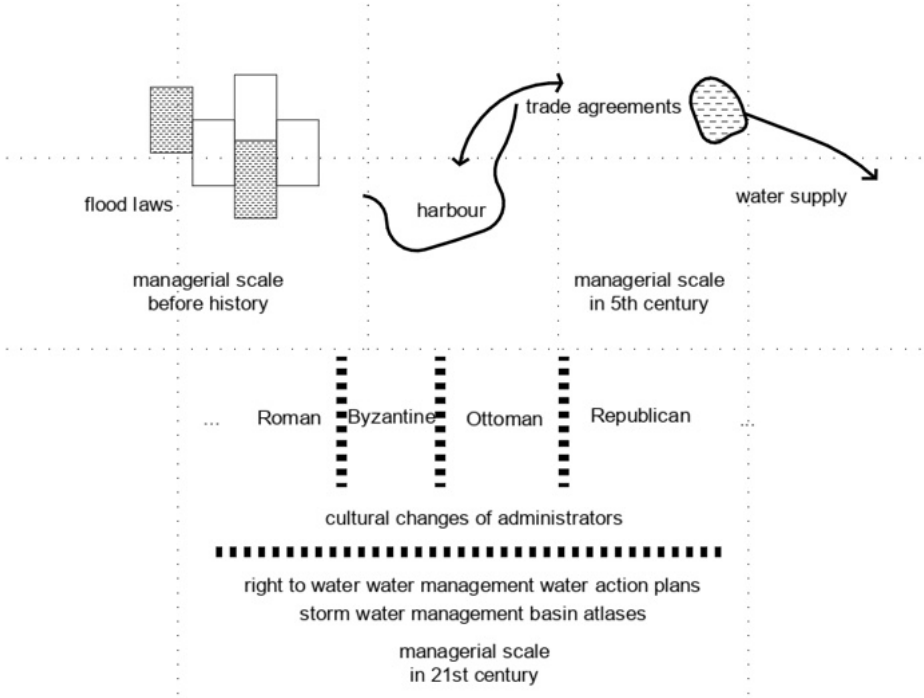

Figure 9. The managerial scale of Istanbul water topology.

DIMENSION IN WATER TOPOLOGY

It is not possible to read the landscape by separating it from its temporal, spatial, physical, and cultural dimensions. Each of these different dimensions gives different meanings and different perceptions of the landscape that represents the whole. For this reason, while addressing the water topology in the historical process, the multidimensional cycles in which each element of the story of water in the landscape is involved; need to be synthesized by associating it with three different scales, macro, micro and managerial scales.

Istanbul Water Topology

The topology of water requires a multidimensional analysis at three different scales: macro, micro, and managerial. After a thorough examination of the relationship between the city and its water systems through an extensive literature review, it is conducted an urban history reading of Istanbul, which has a rich history of water systems and city plans developed in accordance with its topography. It identified micro, macro, and managerial scale contexts specific to each historical period and uncovered the water links from individual water structures to urban-scale water systems. By comparing existing data based on geographic information systems, and overlaying historical city plans and maps, it will be obtained a synthesis of Istanbul's water topology.

First of all, in order to extract the network of relations of water topology the existing urban data of Istanbul (Figure 10) were produced on ArcGIS software. The data of topography, water flows, water accumulation areas, and basins were generated and land use data were obtained from the Corine system (2023). Istanbul water topology has been read separately on macro, micro, and managerial scales in 5 historical stages: Byzantium Period, Constantinople Roman Period, Constantinople Byzantine Period, Istanbul Ottoman Period, and Istanbul Republican Period. After this reading process, it is aimed to reveal the multidimensional relations at different scales between all the historical processes of the city (Figure 11).

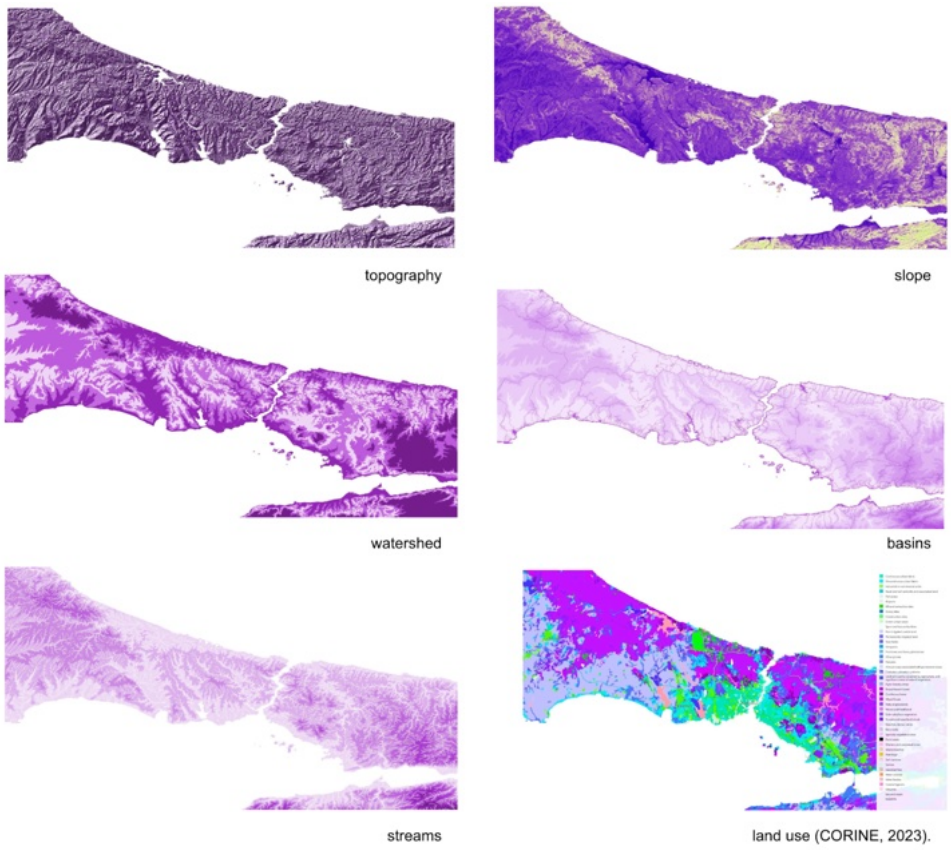

Figure 10. Istanbul urban data (produced by ArcGIS software).

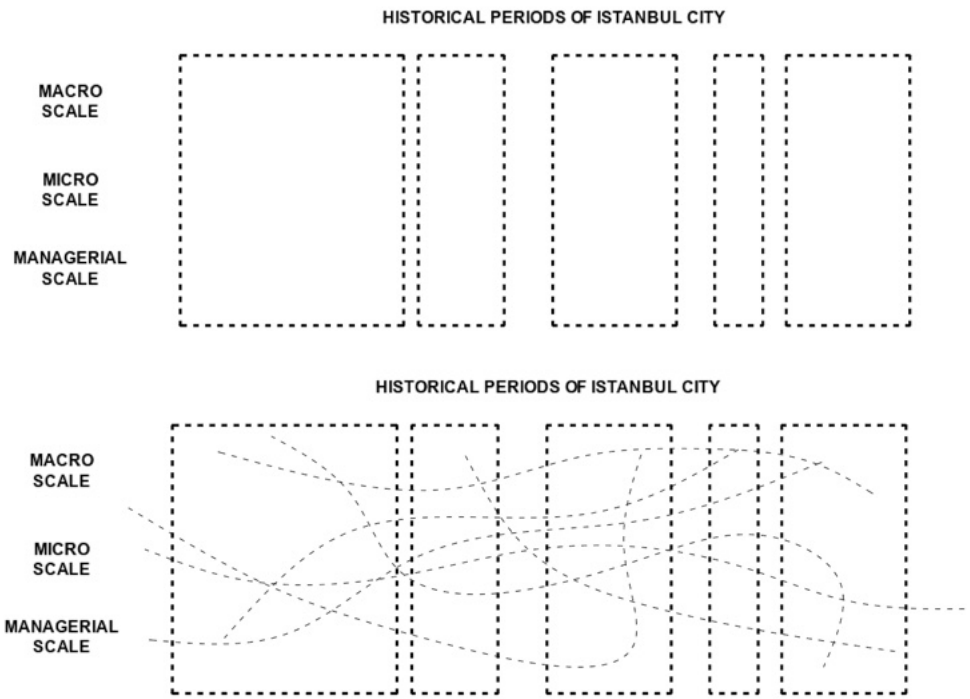

Figure 11. Istanbul water topology reading process.

CONCLUSION

In terms of this research, it is proposed a topological reading method that highlights the multidimensional and multi-scalar story of water throughout urban history. In further studies, the created reading method will serve as the foundation for constructing a water topology system model. In order to thoroughly explore the topological interaction between the city and water at macro, micro, and management measurements and to theoretically explain the multidimensional relationship between all of these levels, the idea of water topology has been established as a re-reading approach. To determine the water topology of Istanbul City, the study is conducted in three parts. Identifying the topological relationship between water and the city is the first step. The second is to specify the topology of the water. The final step is to manage the Istanbul case's methodology. The first phase has three objectives, including describing the history of the link between water and cities, the word "urban water," and the term "water management." After defining the topological term through a literature research, the second process is a discourse analysis. The third stage uses case study methodology and software, as well as tools for mapping and conceptual mapping.

Istanbul, which has a long history of water systems and city layouts created in line with its topography, is the subject of an urban history reading. It highlighted the micro, macro, and management scale settings unique to every historical era and revealed the water connections between small-scale water structures and large-scale urban water systems. Istanbul's water topology will be summarized by comparing the data already available based on geographic information systems and overlaying ancient city plans and maps. So that, the water topology of Istanbul City as a framework on the water-city relationship is investigated.

Acknowledgments

This research is developed from the M.Sc. Thesis “Istanbul Water Topology: A Topological Reading Method Proposal at Macro, Micro, and Managerial Interscales of Urban and Water Relationship” by Gizem Aluçlu with the consultancy of Prof. Dr. Meltem Erdem Kaya.

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WALKING AS A CRITICAL READING: EDIRNE BAZAARS

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ABSTRACT

Criticizing and questioning the architectural accumulation that has been articulated with various periods, movements, narratives, pioneering architects, politics, social events and others over time is an effective method of understanding the relationship between the past and the present. This understanding is also great importance in order to construct possible future potentials. Thus, criticism is seen as a kind of learning act for architecture. In this direction, the critical quality of this study, which is shaped around the act of walking, is provided by the possible expansions of the concepts selected with reference from narratology. According to De Certeau (1984), walking has been defined as an action that establishes space. Moreover, walking is a means of experiencing where body and space actively interact. In order to turn this experience into a critical potential, Henry Thoreau's "Walking" essay was chosen as the research material of this study. The narrative, which deals with the liberating nature of walking, transforms the action into a form of understanding instead of seeing it as a mere body movement. The potentials presented by the text, which characterizes the act of walking with its various aspects, connect with the prepositions of architecture, “within, throughout, around, with” for a base for a versatile space experience. This paper discusses the critical potential of walking with three important bazaars in the city of Edirne, which served as the capital of the Ottoman Empire for a long time: Bedesten Bazaar, Ali Pasha Bazaar and Arasta Bazaar. It is certainly not a coincidence that this sampling was created within the framework of bazaars -with their programs and functions- that are building types designed on the act of walking. Briefly, after the theoretical understanding of the action, architectural descriptions will be obtained by tracing the practices related to the space.

INTRODUCTION

Narrative, in its simplest form, can be described as a way of communicating with the target audience through various tactics. While these tactics may be the literary content it generates for the author; or they may be rhetorical discourses for an orator. In the context of architecture and urban design, this narrative element consists of the arrangements related to the buildings and their environments. When each production/narrative ends and reaches its "target audience", it is ready to be rewritten, spoken or constructed. Therefore, various narrative data added within the historical flow or independently of the flow (forward, backward, both forward and backward) can be considered as data ready to be discussed for each new question asked. In this respect, the topic of this paper is based on reducing the existing narrative data/materials in the context of the problem and reconstructing its equation, in other words, generating it by questioning it and developing a critical perspective.

It is possible to speak of a gradation within the narratives that each discipline relates to. For architecture, for example, buildings, environmental or urban arrangements are the dominant narratives, and this gradation includes perhaps infinitely converging probable relationships such as architectural texts, productions of other disciplines with which architecture is closely related, distant related, and data whose relevance is discussed. Evaluating the aforementioned narrative sets at different levels together and discussing possible relationships corresponds to today's visionary understanding of architecture. For this reason, this paper aims to examine the materials selected by architecture from different narrative stages together. Therefore, in the specific study, the data inherent in the textual and urban/space experience are made premise.

The idea of approaching the present critically can be summarized as interpreting the results of individual or multiple experience(s), breaking the implicit about a particular perspective. Accordingly, when the critical view is reduced to the scale of the city and space, the action(s) of the body(s) alone comes to the fore as the dominant means of experience: walking, observing, touching, smelling... At this very point, the textual scale, in which actions that are critical of the city and space gain a critical view, defines the purpose of the writing. The purpose is to look critically at the city and its spaces and to open up the possible potentials of textual data, to evaluate the narrative at two different levels and to obtain its original outputs by tracing the new view that will be obtained as a result.

The primary narrative data of the paper is the Edirne city bazaars. The city of Edirne, which can be described as multi-layered in many aspects, is very suitable for a literature where narratives at different levels are read mutually. The reasons such as being home to various societies, being a border city, being located on a binding axis, its historical importance, and the fact that there are many literary contents about it makes Edirne an example for multi-layeredness. In this context, as the choice of space for Edirne, city bazaars are focal points that serve as multi-layered, contain various narratives and where social interaction / intersection comes to life. The secondary narrative data of the paper is Henry Thoreau's book "Walking", in which he wrote walking, one of the actions that establish space with reference to De Certeau. The reason why these two materials are combined in a common cluster can be suggested as an effort to go deep into the fact that the program of the bazaar structures is shaped around the act of walking and the book "Walking" opens the discussion of the act of walking. Activating this existing set of information, being able to process it together, constitutes the scope of the study. The act of walking, which is the intersection of two narrative materials, works like a catalyst at this point and makes it possible to experience the literary with the sensual and the sensual with the literary.

In particular, narratology are used to read two different narrative stages (space and text) mutually. In this direction, selected concepts from Gerald Prince's narrative dictionary, two basic concepts that constitute

the method tools of the study and that each narrative has/is likely to have come to the fore. The first of these concepts is "Action". In the narratology, Prince defines action as follows: "A series of connected events that exhibit unity and meaning and move along a beginning, a middle, and an end" (Prince, 1987, p.3). The second chosen concept is "Space". In the narrative dictionary, space is defined as the place or places in which the situations and events represented (story space) and the narrative example take place (Prince, 1987, p.90). The theory of walking through the concept of "action" is discussed in depth, and the book "Walking", which is the primary narrative material, is the main source of motivation for this chapter. Following the theoretical construction inherent in the action, the bazaars of Edirne city center are practically experienced through physical walks through the concept of "Space". At this point, syntactically qualifying prepositions appear as a tool for transferring the theoretical knowledge obtained to physical experience. In this way, the possible expansions of prepositions and the act of walking are transformed into a means of experiencing space. In other words, the theoretical is associated with practice. In order to characterize the act of walking, the prepositions " within, throughout, around, with" are used. Then, Edward Soja's concept of "Thirdspace" was used to take this mutual reading dialectic to the next step. The third place introduces the choice of "other than beyond." Edward simply expresses the nature of thirdization: rather than an additional combination of its dual predecessors, it derives from the disorder, deconstruction, and temporary reconstitution of assumed integrations, producing a clear alternative, both similar and strikingly different. The suggestion of the third as the other sets off an expanding chain of heuristic interruptions. Tertialization as a concept is not sanctified by itself. The purpose of criticism is not to stand in the third and build a holy trinity, but to do more, to advance, to continuously expand the production of knowledge beyond what is currently known (Edward, 1996). From this point of view, in order to be able to open up beyond the narrative concepts, the description takes its place in the method. The depiction does not produce a dull definition, but rather an explanation. Prince's (1987) definition of depiction, then, is as follows: It is the representation of objects, entities, situations, or (purposeless, involuntary) events in their spatial rather than temporal existence, in their topological rather than chronological functioning, in their synchronicity rather than sequency. In this direction, depiction as a third concept that is placed next to theoretical and practical knowledge becomes a base for architectural inferences.

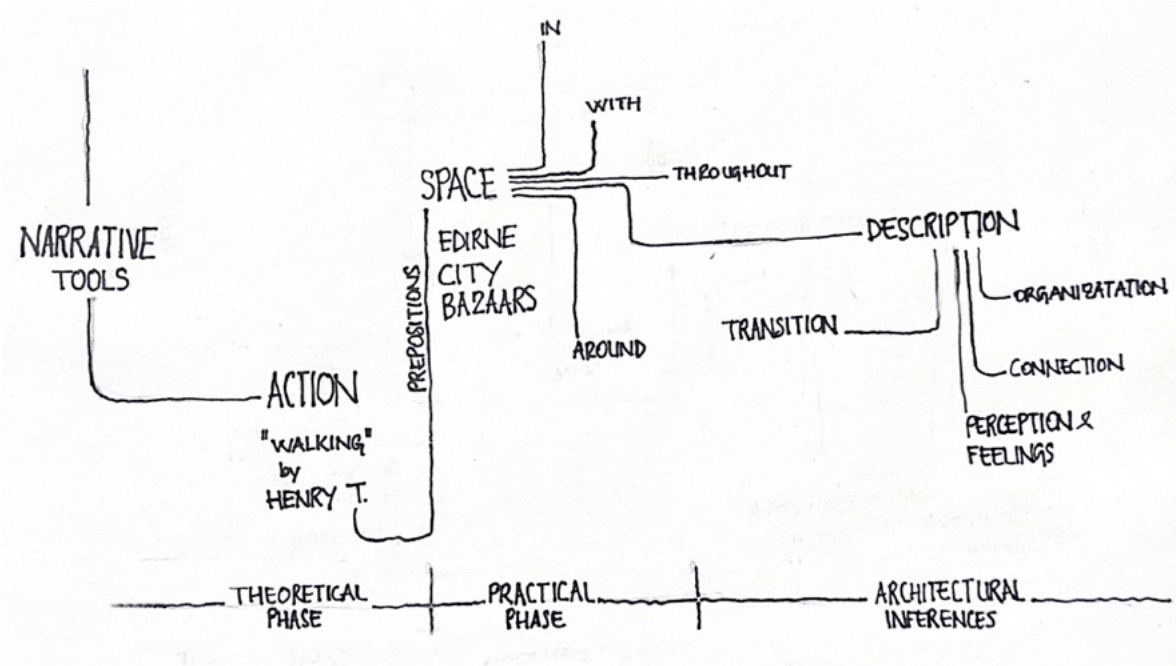

Figure 1. Method Diagram

In summary, the intellectual process shaped around the text "Walking" transforms the act of walking into a means of experiencing space such as walking in -within, walking with -, through prepositions, and all the information obtained as a result of experiences produces its various depictions. In this direction, walking in -makes it possible to perceive the architectural organization and - to walk with the space as a whole, to walk around it makes it possible to depict the possible relations it establishes with the city and the inhabitants, and to walk along it makes it possible to depict the relationship established by the user and the space, the transitional feature of the space (Figure 1). The accumulation of knowledge, which is evaluated by the intellectual and physical dimension of the act of walking, can be seen as a learning and criticism method for architecture. It is expected that the depictions obtained in this direction will be transformed into architectural inferences and interpreted.

THEORETICAL PHASE: WALKING

"All truly great thoughts are conceived while walking."

Friedrich Nietzsche

The history of humanity is the history of migrations that took place in transcontinental orbits, marches that took place with cultural and religious rituals such as the Song lines that connected ancient communities in Australia or the tawaf of Muslim societies around the Kaaba. Moreover, the mapping of regions, the communication and exchange of peoples with each other, is the result of the uninterrupted march of people in the flow of history (Careri, 2002). The act of walking, beyond being a mere capacity for bodily movement, has been an important means of thinking, producing, making sense of since Antiquity. Walks that people often perform unconsciously; Socrates is the bodily activity to which a special importance was attributed by famous early philosophers such as Aristotle. However, even though the philosophical importance of walking was discovered in the early stages of history, the Industrial Revolution that began in the early 18th century and trains/steam transportation as a result of the period replaced the feet and changed the displacement habits of passengers. With the revolution, the act of walking corresponds to negative meanings such as low cruising speed, vulnerability to weather conditions, the need to stop to eat and rest, etc. However, eating, resting, moving, affirming nature, experiencing the tensions of topography are the primary behaviors of bodies. Therefore, rapid transportation, which is a result of the Industrial Revolution, actually condemns and excludes biology and sensory life (Solnit, 2001). At the end of the 18th and early 19th centuries, this condemning view of the movement of bodies turns into an act of resistance (Solnit, 2001). Henry David Thoreau, the author of the first known philosophical treatise on walking, was one of the pioneers of this resistance. The speed of the industrial revolution and the self-alienation of bodies 're-trigger' the formation of a walking culture. Thus, leading thinker-walkers such as Thoreau and Nietzsche often give a reactive force to action with their walks in nature (Gros, 2014).

In the wake of nature-affirming walks, cities are feeding new species of hikers; disciplined pedestrians, flankers, organized walking groups, idle figures wandering around the window dressing walls lead these species. It illustrates 19th century London and Paris in particular, among all western cities, the metamorphosis of the urban walking environment and the birth of contemporary urban walkers (Amato, 2004). Urban flaneurs experience walking, but this gait differs from Nietzsche or Thoreau because they disrupt the uninterruptedness of action in nature with irregular urban rhythm (Gros, 2014). In the first half of the 20th century, the act of marching with the Dadaism movement was brought to the agenda as an anti-art form. The Dadaist approach understands that the tourism, entertainment industry has turned the city into a simulation of itself, and organizes marches to draw attention to nothingness, to reveal cultural emptiness, to glorify mediocrity, the absence of any meaning. The Surrealists who came after the Dadaists argue that something is hidden in the 'emptiness' and that the subconscious, in other words the irrational,

can fill this gap (Careri, 2002). Proponents of mainstream surrealism emphasize the potential of city walks to reveal symbols and deep meanings that remain hidden in everyday life, and furthermore, they trace the accidental and unexpected in the shadow of the surrealist concept of de-ambulation. After the Surrealist 'de-ambulation', a new concept is introduced: Dérive. Dérive, on the other hand, is not only for the purpose of identifying unconscious areas of the city, but also for the attempt to investigate the psychic effects of the urban context on the individual. On the other hand, it focuses on the experience of a lifestyle contrary to the bourgeois order and notations of the city (Careri, 2002). In short, the flow of humanity through the act of walking consists of an organic process that various thinkers such as the discovery of the body, the affirmation of the body, the discovery of its potentials, disembodiment, exposure to the side effects of disembodiment, the discovery of the body in nature and the modern city are nourished by various concepts.

Following the anecdotes about the history of walking, Thoreau's article, which questioned/questioned and wrote the action in a philosophical sense for the first time, clarifies the theoretical framework of the work. In this respect, the way this paper is written is a diary shaped around the importance of nature walks, how walks should be done, the author's thoughts about hikers and subjective walking experiences. In outline, it can be said that the author takes his reader on an intellectual walk. Through the various metaphors and rhetorically enriched language used by the author, the reader bears witness to the fact that walking is a form of art, that the hikers are a crusader or pilgrim exploring the holy land, the liberating nature of the action, and the possible harm that time spent in confined spaces can cause to physical and mental health. For Thoreau, learning to live is the way to becoming a good hiker. Thoreau emphasizes that everyone should spend more time walking, and that the act of walking is also equivalent to the act of thinking (URL-1). The ideal hike that Thoreau describes is a long, inquisitive, exploratory, rambling, wild, and free experience. Moreover, the author expresses the constant orientation of the feet towards unfamiliar atmospheres as a result of the urge to discharge the burden of the mind. At this point, the quotations from Thoreau's article illuminate the situation:

"No wealth can buy the requisite leisure, freedom, and independence which are the capital in this profession"

"In short, all good things are wild and free."

"I think that I cannot preserve my health and spirits, unless I spend four hours a day at least—and it is commonly more than that—sauntering through the woods and over the hills and fields, absolutely free from all worldly engagements."

"My desire for knowledge is intermittent; but my desire to bathe my head in atmospheres unknown to my feet is perennial and constant. The highest that we can attain to is not Knowledge, but Sympathy with Intelligence. I do not know that this higher knowledge amounts to anything more definite than a novel and grand surprise on a sudden revelation of the insufficiency of all that we called Knowledge before,—a discovery that there are more things in heaven and earth than are dreamed of in our philosophy."

Thoreau states that when he says he will 'recreate' himself, his thoughts, he prefers the bleakest and never-ending nature/forest. It emphasizes that a real hiking route should be a deserted place away from

maintenance. For a walking experience like Thoreau mentioned, it is necessary to be away from highways and cities. Because these realities take the body away from the nature of the action, turning it into people who are in a hurry just to 'get somewhere' (Thoreau, 2021).

Thoreau's philosophical attempt at the act of walking is an inquiry into the discovery of life. This 'wild art', which increases awareness of the body and mind, is important for making sense of at least part of life. In the course of the article, it is possible to say that the spaces in which people live and the ways in which they imagine and experience these spaces have changed significantly (Solnit, 2001). Accordingly, to integrate the reactive force that the author associates with the existence of bodies in nature into the city is to include an original and analytic set of layers in the practice of 're-imagining' and experiencing. The drive to 'get somewhere' inherent in the city and its inhabitants leads to a gradual decrease in environmental awareness. Along these lines, it is precisely after the industrial revolution that Thoreau's long, questioning, wild ideal walk is what the 'march' put forward in the manifesto as a means of thinking/imagining today's city. Reactive walking, which is an act of emptying the mind and thinking with reference to Thoreau, can be defined as the act of purging the articulated knowledge of architecture and questioning it. Walking with a parenthesis appears for architecture not as an act of physical construction, but as a tool that implies the transformation of space and its meanings (Careri, 2002).

The act of walking is overshadowed by technologies that require/refuse to leave the house in today's cities and other services with similar functions. The fact that public spaces are not integrated into urban design, that shopping malls replace streets, that the accessibility of automobiles is prioritized, that everything attached to the city is limited to walls and bars, and that the entrances of buildings are provided through garages excludes bodies and turns into an idle state (Solnit, 2001). Thus, thinking about the act of walking in the context of architecture in the 21st century resurfaces all the background knowledge about walking. The walks that have been done and will be done are a set of resolving layers that are added to one another. The body of the traveler walking on these sets of superimposed layers records the events, sensations, obstacles, dangers, changes of terrain on the journey. In this way, the physical and sensory structure of the place/space is reflected in the body in motion (Careri, 2002). That is, the reactive walkers of the 21st century are pursuing new ways of making sense of architecture by liberating their minds, linear and/or nonlinear pedestrian movements.

PRACTICAL PHASE: EDIRNE CITY BAZAARS

The transformation of the revealed theoretical knowledge of the act of walking into a practical experience can be seen as the second phase of the study. In this chapter, the possible relationships of the bazaar structures built around the act of 'walking' with the city and the body are deciphered as a result of reactive walks. The experience route of the study focuses on three important bazaars located in Edirne and the historical city center. The reactive walk in the city of Edirne and its central bazaars establishes a relationship with the city and bazaars through the prepositions " within, throughout, around, with". This approach, which guides the act of walking, is an important tool for experiencing and making sense of space.

The city of Edirne is located in the Thracian region of Southeastern Europe extending towards the Marmara; Tunca is located in the arc formed by the Arda and Meriç rivers. In addition to hosting different civilizations such as Macedonians, Romans and Ottomans in the historical process, the fact that it is located on the road connecting Anatolia to Europe and that it forms a crossroads point with its proximity to the ports of Istanbul and Izmir makes Edirne an important trade market (Durmuş and Öktem Erkartal, 2015). Showing its main development in the Ottoman period, after İznik and Bursa, until the conquest of Istanbul, it retains the title of the center of government. However, in addition to the attacks it suffered in the 19th

and 20th centuries, it could not develop as it should due to the fact that it was a border city in the Republican Period (Guelitt, 2006).

Cezar mentions that the commercial region of Edirne, like the other Ottoman cities he examined, was built near the city fortress/walls and adds that topography and suitability for human access constitute an important parameter in the shaping of the commercial zones where the bazaar structures are located (Cezar, 1981). The commercial texture starts from around the big central bazaars such as Bedesten, where valuable goods are sold, and is graded towards the inns, Arastas (Ottoman Bazaars), important trade streets. In this direction, the walking path of the bazaars located in the city center of Edirne and establishing strong relations with the inhabitants; starting from the Selimiye Mosque Arasta, one of the most important buildings of the Ottoman Empire, it ends with the Ali Pasha Bazaar extending from Bedesten to Saraçlar Street.

FIRST STOP: ARASTA

Arasta, which was built by Sultan Murat III to Architect Davut Ağa to provide income for the Selimiye Mosque, consists of shops lined up on both sides of a hall covered with vaults. In 1874, the roof cover above the vaults was changed to tile (Aslanapa, 2013). It is observed that the entrance doors are made of stone, the other parts are made of stone and brick, and the vaults and arches are built only of brick. The proportions of the masonry, consisting of one row of cut stones and two rows of bricks, are interesting. Evliya Çelebi says that this is the kavaflar bazaar and that various lugs are made and sold. There is a prayer dome in its center, and according to the narrative, every morning in the prayer dome, the shopkeepers swear and pray that they will do the right thing and will not deceive anyone (Erdoğan, 2019) .

Figure 2. Collage of Arasta Walking

Following a general briefing on the Selimiye Arastası, the subjective impression of the reactive march in Arasta today is as follows (Figure 2):

"I start walking right next to the Selimiye Mosque, which Mimar Sinan called my masterpiece. Nowadays, its dome surrounded by a blue veil and minarets surrounded by construction scaffolding feel a little bittersweet, but Selimiye still does not lose anything from being Selimiye. With his dominance over all his surroundings, he rises in the void and maintains his dominance in the city. Just as I was about to succumb to the splendor of Selimiye and almost deviate from the purpose of the march, Arasta's gate appears and Selimiye's invitation to the urban dweller fascinates me. As a mosque, in addition to reminding itself at 'certain times', it also ensures that life is always maintained within its structure with its different functions. This time I join Selimiye as Arasta's guest, but Selimiye continues to keep people around for different purposes such as tourism, rest, worship and meeting. Always in the front, always in the eye... Traditional Edirne Flavors catch my eye on Kavala cookie shop. It is the focus of intense attention of the day-tripper Bulgarians. I'm getting a little closer... The confectioner is waiting to take out most of his products in the store, while the other store vendor selling the stonework products stands at the door confident of his products. I'm becoming aware of what I didn't have before. I dive in, passing under the stone arch. Instead of saying I entered through the aluminum door, I prefer to say so... The Turkish flags standing at a 45-degree angle between the shops placed opposite each other immediately attract my attention. It feels possessive. Arasta says it is ours. In the shops, people, vendors, a fast flow, I walk. Towels, rosaries, key chains, religious books, soaps, colorful fruit soaps, mirrored brooms – I understand unique to Edirne – shops that use high ceilings as warehouses – I pause suddenly, I feel like I have to stop. When I turn my head, I see the inscription 'mosque entrance'. The connections feel nice. Then I lift my head up. Beams of light seeping through the windows of the prayer dome refresh the space. I'm relieved... I walk out the middle door. The door opens to the city. The historical city hall, the Old Mosque with all its monumentality located right in front of it, the Three Cheers a little further back... I salute the city. I embrace the history of Edirne. I continue to wander around its peripheries, I watch Edirne, I become one with the city. Then I turn the corner. Now I'm at the Kıyık Gate. Shore Gate, red small trash can, smoked big trash can, broom, fire hydrated, cameras, cables, clothes on hangers, mirror with leaf visible through the glass door... it pulls away, my feet pull back... I feel like it's time for me to break up. I'm starting to make my way to Bedesten..." (Bali, 2022)

SECOND STOP: BEDESTEN

Located next to the Edirne Old Mosque and opposite the Rüstem Pasha Caravanserai, Bedesten was built by Architect Alaeddin by order of Çelebi Sultan Mehmed and dedicated to the Old Mosque (Aslanapa, 2013). It is a 14-domed structure on a decorative wall covered with two-color cut stones. It is estimated that it was built in 1418. In the bazaar, which has doors on four sides, pointed arched windows on the walls are lined up as one window under each dome (Aslanapa, 2013). After suffering a large fire, its repair is carried out. In Bedesten, which is said to be one of the richest shopping markets in the world during the period when Edirne was in the foreground, it is included in the notes of the travelers that the rich jewelers dazzled the diamonds and diamonds. This brilliant period of the Bedesten continued until the end of the 18th century, but today it is possible to say that the bazaar has lost its former vitality (Erdoğan, 2019).

Figure 3. Collage of Bedesten Bazaar Walking

The subjective impressions obtained through the walk of the present-day Bedesten are as follows (Figure 3):

"I'm excited. After all, the most magnificent bazaar of a period. Moreover, he hides himself in the shadow of the Old Mosque, loves surprises, wants to stay special, makes him curious. I am approaching, the Old Mosque is getting bigger and bigger with all its majesty, it is getting bigger, it is getting more beautiful as it grows, it is fascinating itself... The vehicle comes, I stop, I give way, I cross the street. The line on the wall where the entrance door of the old mosque is located attracts me, I stop, I think... I affirm the surrounding landscaping and trees with my soul. I join an inviting little landscape bridge. It takes me from here to here, to Bedesten. Again, the emphasis on the entrance door and the mass domination attracts my attention. I set out to examine, affirming the mass. Down quota, ladder invites me. However, I can't understand whether it is inside or outside the bazaar. People are around, beyond, and beyond the Bedesten ... So, I take the Old Mosque behind me and start walking around it... Bunches of willow trees beautify my landscape. On one side of me are the seating areas of the eating and drinking places, and on the other side are the Bedesten shops... Buffets, doner maker, blueprint, cyclist, olive grower, doner griller, Kavala cookie baker again... As I get to the point where I started, I suddenly notice the 'Barber of Youth'. I wonder if it suits Bedesten, who has ever come of age. There is a little bit of everything on the peripheries of Bedesten, you can understand... Now I'm coming in. I don't want to look down, I don't know if it's because of the flooring or the atmosphere. I raise my head. I focus on the walls. I notice the aesthetics in the arrangement of the stones. I witness the use of color, measure, coram. I see the History of Bedesten housed in easels. I can't focus on the history from the LCD screen on the back wall and other trinkets. Again, Turkish flags, yarns, wool, handmade wicker baskets, sellers, buyers... A little bittersweet, a little empty... My excitement gives way to a deep calm. Apart from the purpose of buying wool, I start to ask myself questions such as will I come again. I go out of that door and I go through that door. I connect to the city from different axes." (Bali, 2022)

THIRD STOP: ALI PASHA BAZAAR

It was built by Mimar Sinan in 1569 by the order of Herekeli Semiz Ali Pasha, one of the last viziers of Sultan Suleiman the Magnificent. The bazaar, which was one of the most active commercial centers of the 16th

and 17th centuries, was later taken over by individuals and suffered great damage. It can be accepted as a similar part of the covered bazaar in Istanbul in Edirne (Aslanapa, 2013). The bazaar, which is 300 meters long, has 6 gates. The door on the side of the tower is called the "Tower Gate" and the door on the opposite side is called the "Fish Gate". After the fire in 1992, it was repaired by the foundations and is still used more actively (Erdoğan, 2019).

Figure 4. Collage of Ali Pasha Bazaar Walking

The subjective walking impressions of Ali Pasha Bazaar, which is located on one of the most important streets of the city, are as follows (Figure 4):

"I leave the bedesten and go towards Saraçlar Street, one of the most important streets of Edirne. I pass through the crowds and arrive at Saracs. Birds are flying, balloons in the balloonist's hand want to fly, the minute hand is turning, people are talking, walking, sitting, singing... I lift my head up. I witness different period architectures. I am fascinated by the mosaic texture. I am told in my heart that 'Edirne is a European City'. I use the information in my memory. I understand that it is important to look up. I am at Ali Pasha's İğneciler Gate. I just can't get in right away. The stair railings invite me downstairs. I understand that I have to descend. Turkish flags, imitation shoes, kavala cookies, marzipan, cheese maker... I stop, the cheese shop is right near the exit, behind the door. I cross the threshold of the door with an add-on chunky ramp. I arrive at the cheese shop and buy a medium hard mold of Edirne cow cheese. I keep an eye on the noodles on the shelf and the seller explains to me that they were made and brought to Uzunköprü. I also buy noodles. At that moment, I realize that I am hungry. Through the middle door of Ali Pasha, I connect to the famous liver-fryer Niyazi Usta. As I wait for my order, I witness the conversation of the table behind me. 'In my childhood, Ali Pasha, Kaleiçi was very beautiful, very different' voice rises first in my ear and then in my mind. Think... I return to Ali Pasha and reach Saraç by using the middle door axis. I continue to walk on the peripheries of Ali Pasha. Although there are many shops with different functions, I focus on the jewelers who come after me... I'm at the bottom door. I'm going back inside. I feel like every door of Ali Pasha is dragging me to unfamiliar seas. I get excited about each one individually. I cross the crowds to get to the front door, which is located directly opposite the back door. I raise my head. I salute the Macedonian Tower. I decide to end the day against the Macedonian Tower. I walk, I think, I stop and cross the street, I stop and think and keep walking again. Just like Thoreau did, I end my walk at sunset." (Bali, 2022)

ARCHITECTURAL INFERENCES

As a result of the transformation of the potentials offered by the selected prepositions into practice, architectural implications inherent in the city and its bazaars are raised: the first of the prepositions, 'walking within', defines architectural organization. It makes it possible to understand the hierarchy and order within the space. Moreover, the movement of the body through space with its own fictionality can affirm, distort or reconstruct the organization of space. The preposition 'walking throughout' reveals the transitional feature of the space. Discusses the passage possibilities of the space, such as which important axes the doors of the space connect, how they provide transitions to the city, etc. The third preposition, 'walking around', is the set of relations that space establishes with the city. The overall impression of the city and the place is shaped by the walks around it. Finally, the preposition 'walking with' makes the remaining features of the space, the atmosphere of the space, a part of this experience by including all the sense organs. In other words, it focuses on the perception of space (Figure 5).

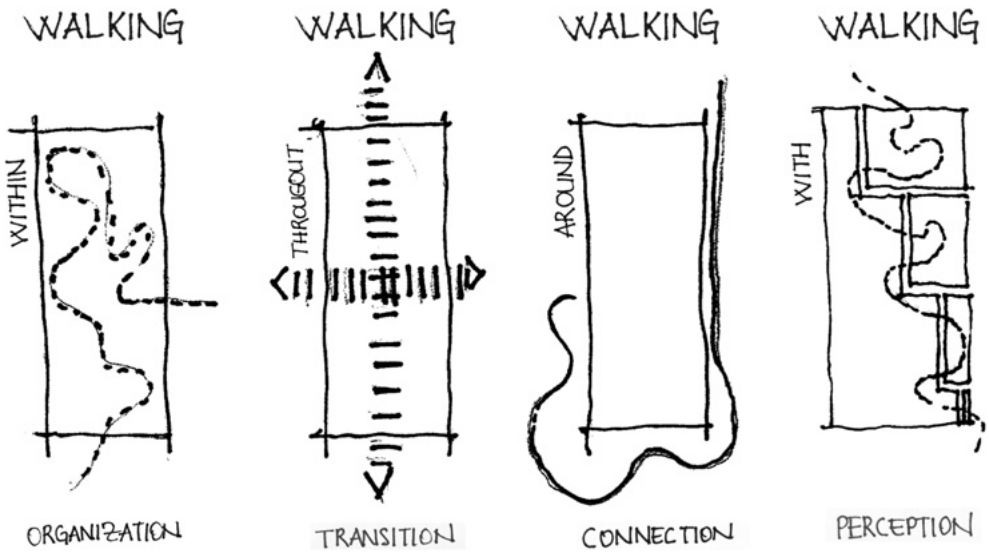

Figure 5. Walking city diagram

WALKING WITHIN EDIRNE CITY BAZAARS: ORGANIZATION

While, in term of organization, Selimiye Arasta and the Bazaar of Ali Pasha overlaps with each other, Bedesten differs from the other two bazaars with different shop arrangements and plan setup. While the mass formation of the Arasta and Ali Pasha Bazaars triggers the act of walking, the large volume of the Bedesten encourages the walker to be still. Bedesten is a 'specialized' commercial area where wool and handcrafted wicker baskets are sold. However, it is possible to say that the products sold for the other two bazaars are diversified. Therefore, while Bedesten's customer profile is the people who visit there in daily life for their needs, the user profile of other bazaar structures is dynamic and difficult to define. It is possible to say that the interior and exterior of all three bazaars serve similar functions. They show an open, inviting attitude to the city and the urban dweller in both aspects. This inviting attitude can also be read through the wide, mass-dominated attitude of the entrance doors. Designs that contribute to both the acoustics and lighting of the space, such as the 'prayer dome' in the space organization, are an element that should not be ignored in building organizations. Finally, stating that there are various aesthetics in the design of all bazaar buildings, if we need to emphasize Bedesten in particular; one of the other important issues is that the

space wall, which is given as an example in the walking experience, is included in the design as an 'aesthetic element' and the wall stone arrangement contains the design principles.

WALKING THROUGHOUT EDIRNE CITY BAZAARS: TRANSITION

Going outside is always moving from one indoor environment to another. The outside is a transition (Gros, 2014). As a result of the walking, it was determined that the three bazaars experienced connected the monumental axes of the city. These axes can be cultural, functional, etc. However, sometimes the transition can be created outside of what is expected, just to ensure accessibility. For example, the Ali Pasha Bazaar connects the pedestrian from the Macedonia Tower to the Fish Market. The restaurants frequented by the city are again connected to Saraç with the middle gate of the Ali Pasha Bazaar. The integrated relationship that Arasta established with the Selimiye Mosque is also important. Arasta, on the other hand, is very successful in incorporating pedestrians from the surrounding areas into the city. Bedesten's bringing the pedestrian from the Old Mosque to Tahmis Square and the axis extending from there to Saraç constitute one of the examples that can be given to the 'transition' feature of the bazaar structures.

WALKING AROUND EDIRNE CITY BAZAARS: CONNECTION

Thanks to the walks around the bazaars, some basic information about the texture of the city is partially known. While Arasta's relationship with Kıyık Street makes the minority community in the city aware of the city, Ali Pasha's gate opening to Kaleiçi makes it possible to observe the Roman Period grid city settlement. All three bazaar buildings are in the neighborhood with other important historical buildings of Edirne. Bedesten's relationship with the Old Mosque through small landscaping, the mosaic union with other historical style structures that complement the Ali Pasha Bazaar along Saraçlar Street, the panoramic view of Arasta's famous minarets of the historical city hall, the Old Mosque and the Üç Şerefeli Mosque can be increased as examples of this historical neighborhood. In addition, the fact that Arasta is at the center of many functions that can be increased such as municipalities, military, educational institutions, religious facilities, and the sovereignty established by the building mass is positive. Within the other two bazaar structures, being the focus of different functions is similar to Arasta. As mentioned in the organization section, the reflection of the functions of the bazaars on their surfaces and walls and the continuation of commercial activities outside as well as inside make the communication with the city and the urban citizens continuous. In this way, the building is more easily adopted by the urbanites and becomes a part of the city.

WALKING WITH EDIRNE CITY BAZAARS: PERCEPTION

Bazaars through multiple senses, the experience of perception while walking first increases the awareness of space. The eyes are disturbed by aluminum joinery while approving the natural stone texture, the ears hear Bulgarian, English etc. words, the boundaries of the space exceed Edirne, the sociocultural consciousness is always remembered by the spread of liver odors from the environment or the smell of soap on the counters, the effect of the sounds echoing in the prayer dome on the acoustics of the space, the contact of the hands with different fabric textures from the copper coffee pot becomes the same state with the space, are a few examples of multiple sense experiences related to space. Elements that are not suitable for the function of the space or various additional parts that do not belong to that place disrupt the atmosphere and create a feeling of distancing, on the other hand, the various connections offered by the space with the entrance-exit facilities and the effective use of light in the space affect the atmosphere positively and make it possible to place memories to use the space in a similar style again.

INSTEAD OF CONCLUSION

This study, which is about the Bedesten Bazaar, Ali Paşa Bazaar and Selimiye Arastası in the city of Edirne; while basing the act of walking as a way of critical reading in a theoretical framework in Henry Thoreau's book 'Walking'; for the discipline of architecture, he defines the experience of space with the prepositions "within, throughout, around, with". According to the architectural inferences made through prepositions, the spaces of the bazaars and arasta are depicted through the senses and emotions perceived during walking. In this context, it has been concluded that the act of walking is useful and original for architecture as a cognitive and design tool, as a means of recognizing a geography in the chaos of peripheries, and as a way of intervening in public metropolitan spaces and finding new ways of studying them (Careri, 2002).

The fact that the sample within the scope of this paper is market spaces and that the programs and functions of the markets are planned to focus on the walking action is in accordance with the nature of the original inferences produced by the authors of this paper. Nevertheless, it should not be forgotten that; each experience is unique, different experiences can create different prepositions and draw new routes for the visitor / inhabitant.

As a result, this paper, which aims to provide an example of critical reading, points to the potential of the act of walking in architectural thought with the theoretical framework it presents with the theme of walking. Thus, the act of walking in the experience of body and space is built as a thought-action dialectic that is known but needs to be recalled and reproduced with different perspectives.

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AN APPROACH TO IDENTIFY THE ELEMENTS CONTRIBUTING TO VISUAL POLLUTION IN URBAN AREAS

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ABSTRACT

The influence of the built environment on our mental state and well-being has been discussed substantially in the existing literature. Our physiological and psychological conditions can be adversely affected by poor or unpleasant living conditions, overexposure to light or darkness, lack of access to a hygienic environment, high dust levels, noxious fumes, and lack of a systemic order, among many others. The built environment is constantly bombarded with visual pollutants that cause irritation, fatigue, and saturation. They hinder our visibility while we move about in the built environment. However, we have become so accustomed to these visual stressors that we often turn a blind eye to them. To some degree, we have lost both our aesthetic and civic sense.

The visual environment, undoubtedly, forms the first impression of a place. Great places are generally found to have an overall stirring aesthetic. In urban environments, 'visual pollution' refers to anything that gets in the way of people taking in the sights around them. Visual pollution has been observed to cause eye irritation, impatience, and a change in our personality, all at the same time. Visual blight ruins the city's image and identity, and may also make a new traveler feel unsafe. Based on existing literature, the present paper explores the built and natural environment elements leading to visual pollution.

KEYWORDS: Environment, pollution, stress, urban, visual

INTRODUCTION

Visual pollution is primarily an aesthetic issue (Ageed, Hassan, & Ismael, 2019) which refers to "the introduction of unsightly elements that interfere, clutter or intrude" upon a scenic view, vista, or avenue (We Naturalists, 2022). It is also defined as "the degradation of the visual quality of historic city centers caused by commercial signs displayed on building façades and in public spaces" (Portella, 2014).

Visually polluting elements in an urban environment often lead to unwanted distractions, visual discomfort (Azeema & Nazuk, 2016), stress, eye fatigue (Mishra & Tiwari, 2019), exhaustion, anxiety (Banerjee, 2017), insomnia (Sarab, Zaeimdar, & Rafati, 2019), intolerance, and, most importantly, loss of a sense of place (Khanal, 2018). Visual pollution damages the economic health of cities (Madan, 2016). It adversely affects our physical health, mental health, stress levels, and quality of life (Mishra & Tiwari, 2019). It also impinges on the migrant and tourist influx.

Given that the human brain is a plastic system that continues to evolve even in old age, it is crucial to address the visual pollution that people of all ages are exposed to. Though we have a psychological longing for a visually pleasant environment, we overlook the menace created by visual pollutants (Jana & De, 2015).

Unlike other forms of pollution, such as air, water, soil, noise, and light pollution, "visual pollution has not been extensively studied, nor have its impacts been assessed" (Silva, 2020). This necessitates the identification of the man-made and natural elements contributing to visual pollution, and understanding their impact on human psychology.

BACKGROUND

There has been a recent upsurge in discussion on the detrimental effects of outdoor advertisements on the aesthetic quality of urban spaces and residents' well-being in the literature on architecture and psychology.

In this visually overwhelming setting, outdoor advertising is a need from a capitalist point of view. These days, it is common to see enormous billboards affixed to the sides of buildings, foot over bridges, or even high-rise roofs, detracting from the visual appeal of cities and their neighborhoods. There is a risk of structural failure due to the added dead load and wind pressure on the buildings. Unlike television, radio, newspapers, magazines, and social media advertisements, it is challenging to skip outdoor advertisements.

The nation is becoming an aggressive advertisement zone, leaving behind shopping and fast-food addicts. In the name of marketing, cities are being spatially homogenized. Indian cities must look up to São Paulo's revolutionary 'Clean City Law' (Silva, 2020) that restricts advertisements, signages, and graffiti in the public realm to improve the city's visual identity and offer people a clutter-free environment.

The following sections shall discuss the study's aim and objectives, followed by the methodology, an extensive discussion of the identified elements contributing to visual pollution, a summary of findings, a conclusion, and the way forward.

AIM

This paper explores the man-made and natural elements that contribute to visual pollution in urban areas.

OBJECTIVES

To understand the causes and impacts of visual pollution of the built and natural environment on our psychology.

To identify the elements contributing to visual pollution in the built and natural environment.

STUDY METHODS

To achieve the study objectives, the study first explores existing literature on the causes and impacts of visual pollution in the built and natural environment, followed by the identification of the elements that contribute to visual pollution.

CAUSES AND IMPACT OF VISUAL POLLUTION ON HUMAN PSYCHOLOGY

The experience of 'unpleasantness' is an amalgamation of the physical pain sensation and a repulsive mental attitude (Sapién, 2020). The 'intensity' of physical or mental pain regulates the degree of unpleasantness. However, unpleasant experiences do not have any 'ingredient' in common (Sapién, 2020). For instance, being a bystander to a car accident feels different from being stuck in traffic, although both are unpleasant.

Stripes and spatially-repetitive geometric patterns can cause visual discomfort and induce visual stress. Sometimes, they can trigger headaches, seizures, photo-sensitive or pattern-sensitive epilepsy, and migraines (Wilkins, Penacchio, & Leonards, 2018). Flicker from electronic displays can also overwhelm the visual cortex (Wilkins A. J., 1995). Moreover, colors like olive green (Lazreg & Mullet, 2001), dark gray, and reddish-brown are among the ugliest in the palette. These visual stressors alter the brain chemistry by lowering the levels of dopamine, endorphins, oxytocin, and serotonin, thereby leading to a feeling of unpleasantness.

On the other hand, visual environments that contain less information are processed fluently or spontaneously by our brain, are perceived as 'pleasant,' and are associated with a positive emotional state, excitement, physical well-being, and satisfaction (Pecchinenda, Bertamini, Makin, & Ruta, 2014). Visual symmetry (Pecchinenda, Bertamini, Makin, & Ruta, 2014), curves, colors like blue and green, factors like regularity, orderliness (Portella, 2014), simplicity, rotational symmetry (Lazreg & Mullet, 2001), and elements in line with the golden ratio give a feeling of pleasantness.

People favor valleys, hills, snow-clad mountains, cliffs, forests, manicured lawns, sunrise and sunset points, and landscapes with water bodies. The naturalness of water feels refreshing, and reflective water attracts and holds our attention (Nasar & Li, 2004). Further, landforms such as swales and berms feel soothing to the eye.

Plants reduce the harshness of the urban landscape by acting as a natural air purifier and noise buffer, and they also help to conceal architectural eyesores that contribute to visual pollution. *"In the concrete jungle of cities, open green spaces can provide welcome relief"* (Devulapalli & Padmanabhan, 2019).

ELEMENTS OF THE BUILT ENVIRONMENT CONTRIBUTING TO VISUAL POLLUTION

It has been observed that visual pollution is more widespread in historical and tourist-friendly cities (Ünüvar, Yildirim, & Ahmed, 2021). The city's visual identity is predominantly defined by its architectural structures and silhouette (Yilmaz & Sağsöz, 2011).

A building's façade is vital in shaping the public's perception of a city since it connects the two realms of architecture and urbanism. Stark differences in building heights also contribute to visual pollution (Shatwan, 2021).

In the eyes of the public, the most obtrusive forms of visual pollution are trash, hoardings, billboards (Parveen, Afreen, & Fatima, 2020), and overhead cables. External stimuli like print and electronic billboards visually divert the attention of drivers, motorists, and pedestrians as they take their gaze away from the road. In addition to advertising various products, services, campaigns, brands, restaurants, and films, billboards often propagate an anthropocentric view of the world (Khanal, 2018). They are a safety hazard as a prolonged distraction, beyond two seconds, can lead to severe road accidents. Texts and images on billboards can trigger emotional reactions, altering our behavior and safety.

Food waste becomes a breeding ground for animals, produces a foul odor, and ends up in landfills. Construction materials and demolition wastes like concrete, bricks, and wood, lying unkempt on streets, not only block the stormwater drainage system but also endanger the drivers, motorists, and pedestrians, especially at night.

The monstrous communication towers, with a metallic appearance, give an impression of an industrial precinct (Nagle, 2012). Overhead high-voltage cables sometimes break or become entangled with passing vehicles or pedestrians, causing tragic accidents. Moreover, the optical-fiber cables and television cables are suspended over all available man-made and natural elements, cluttering the city skyline and averting us from relishing a clear sky.

Although it is becoming more and more popular to see street art in Indian cities, the repercussions of obscene graffiti, vandalism (Reddy, 2018), disfigurement, or defacement on our psychological state cannot be ignored (Ageed, Hassan, & Ismael, 2019).

The presence of visual pollutants disrupts the place's identity, atmosphere, quality of life (Cvetković, Petronijević, & Ćurčić, 2018), quality of experience, and even reduces the property values (Jana & De, 2015).

SUMMARY OF FINDINGS

The man-made elements that contribute to visual pollution like discarded plastic bags (Eyenga, Focke, Prinsloo, & Tolmay, 2001), outdoor advertisements, generator wires (Ahmed & Mushref, 2021), elevated highways, railroads (Anciaes, 2017), cell phone towers (Nagle, 2012), and wholly or partially abandoned

buildings (Cercleux, Merciu, & Merciu, 2016) wipe out the beauty of the natural landscape. The natural elements contributing to visual pollution are fog, haze (Ageed, Hassan, & Ismael, 2019), weeds, barren land, and dry leaves, to name a few.

The study findings have resulted in a list (see Table 1) consisting of the man-made and natural elements contributing to visual pollution, categorized under the various triggers of unpleasant experiences: excessive text, color palette, striped pattern, geometric pattern, and artificial lighting.

Excessive text	**billboards; hoardings; posters; political advertisements; banners; promotional bills; commercial signboards; graffiti**
Color palette	*olive green* (algae); *mustard yellow* (animal feces); *dark brown* (landfills; mud; soil dust; haze; forest fire; smoke from vehicles, chimneys, generators, industries, or incineration); *dark gray* (loudspeakers; surface parking; satellite dishes; construction debris); *reddish-brown* (rusted surfaces); *black* (open drains; overhead plastic tanks); *white* (fog; plastic, or medical waste)
Striped pattern	overhead cables; clothes drying on railings, balconies, or fencing; ducts; communication towers
Geometric pattern	flags; streamers; buntings; utility holes; utility boxes; photovoltaic panels; outdoor air conditioning units
Artificial lighting	headlight glare; flickering light

Table 1. Elements contributing to Visual Pollution

CONCLUSION AND WAY FORWARD

The built environment lacks visual harmony and systemic order. Indian cities have already begun to lose their identity, uniqueness (Jana & De, 2015), and characteristic ambiance (Cvetković & Petronijević, 2018) due to the ubiquity of these visual pollution elements.

The man-made elements contributing to visual pollution should be camouflaged with the natural landscape to reduce the visual noise (Carter, 1970). Traffic lights and signages, essential for the mobility corridor, must be easily identifiable and readable within a fraction of a second. On the other hand, all other elements contributing to visual pollution should be disguised with their surroundings to avoid unwanted attention.

The human-centric design must focus on understanding architecture and human psychology together to achieve a better user experience. Structural audits must be carried out for buildings over thirty years old. Highly dilapidated structures beyond repair must be immediately vacated and demolished. The concept of 'minimalism' should also be applied to the built environment.

Future research in this domain can be categorized into three types. One type of research can explore the elements contributing to indoor visual pollution, as we spend most of our time inside buildings today.

Another research extension in this domain can also explore the development of a visual impact assessment tool. The next step in this realm can include research evaluating visual pollution's social, economic, and cultural costs.

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HERITAGE BY-PRODUCTS AS CORE INDICATORS OF CULTURAL HERITAGE ECONOMY

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ABSTRACT

Heritage towns portray the reflections of the past that influences the present and future of the place and community. Hence future transformation of such towns that incorporates the past is a challenge requiring strategic planning and assessment. The role of Cultural Heritage Economy (CHE) in a heritage town has proven to be of extreme significance that defines its social, cultural, socio-economic, tourism and infrastructural attributes. The economy of a heritage town is highly dependent of the sectoral developments and outcomes produced as the resultant of presence of cultural heritage. Hence the identification of the core indicators relating to the heritage by-products play a pivotal role to evaluate the economic scenario and future potential of heritage ecosystem. This research aims to identify the significant by-products of a heritage ecosystem and formulate an integrated heritage economy assessment framework that interlinks the social, cultural, physical, economic and demographic aspects to the economy of heritage town. As a result of extensive schematic literature review, the study outlines the indicators of cultural heritage economy that require assessment to evaluate the economic value of cultural heritage towns. An integrated Delphi technique-rank analysis method had been utilized to identify the core indicators of the CHE. The research indicates that the resultant developments and outputs due to presence of heritage, significantly effects the conditions of its heritage economy and requires detailed assessment to plan for future developments for the heritage towns.

Keywords: Cultural Heritage, Economic Assessment, Cultural Heritage Economic Indicators, Heritage By-products

A STUDY ON THE EFFECTIVENESS OF ENTERPRISE INVESTMENT IN REGIONAL REVITALIZATION - A CASE STUDY OF TAIWAN AND JAPAN

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ABSTRACT

In response to the massive exodus of people from rural areas due to aging, childlessness, and over-concentration of the population in urban areas. Japan introduced the "regional revitalization" system in 2014 to create local employment opportunities to attract people to stay in rural areas through the promotion of policies to revitalize local economies and the power of private enterprises. Taiwan faces similar development issues as Japan and is promoting the regional revitalization policy in 2019, hoping to learn from the experience of Japan and promote the return of the population to rural areas through the cooperation between central governments, local governments, enterprises, and the private sectors to reach the goal of developing local characteristics and economies.

Actors of regional revitalization include governments, NGOs, residents, and private enterprises. In progress, actors maximize the benefit with their expertise, local knowledge, available resources, and cooperation. Among those actors, private enterprise that understands the product market, has flexible business management, brand-building experience and skillful marketing strategies, is more conducive to developing regional industries. This research is based on the perspectives of regional revitalization actors and influencing factors. Analyze the evolution, similarities and differences of the regional revitalization system between Japan and Taiwan. This paper examines the process of regional revitalization in Taiwan and Japan through further case studies and in-depth interviews. Moreover, propose strategies to encourage private enterprises to participate in regional revitalization. To bring in the power of private enterprises, and to collaborate with the government, local organizations and residents. To explore local business potential and provide stable employment opportunities. Stable development of regional revitalization business should be followed by eliminating reliance on the government. Sustainable business management by enterprises and communities is a key benefit of regional enterprise investment. To achieve the goals of reducing rural exodus, assisting local economic development, and coexisting with the region.

KEYWORDS

Regional Revitalization, Key Actor, Public-Private Partnerships, Enterprise

1. INTRODUCTION

Japan is currently ranked 11th in the world in terms of population, with a population of around 125 million by the end of 2022. After reaching its peak in 2008, the total population has started to decline and is expected to fall below 100 million by 2050, with only 50 million people left by 2100 (Tatsunosuke Ota, 2016). Moreover, Japan became an aging society in the 1970s, with 7.1% of the population over 65. According to the United Nations, Japan has the fastest aging trend in the world. By 2060, the older adults over 65 will comprise close to 40% of Japan's total population (United Nations Statistics Division, 2021). The low birth rate, ageing and urbanization will not only increase the burden on Japan's society and economy, but may also lead to the disappearance of more than half of Japan's towns and cities. In response, Japanese Prime Minister Shinzo Abe proposed the "regional revitalization" policy in 2014, designed to revitalize the local economy. Creating regional revitalization units is the Japanese government's strategy to promote agriculture, tourism, and technological innovation. Develop cooperation between private enterprises and local administrative units by bringing together individuals from industry, government, academia, and residents (Executive Yuan, 2019). Establish an effective cycle between "towns, people, and job creation" so that the living and production environment of the city and town continues to grow.

Taiwan also faces a low birth rate, urbanization, and an aging population. In 2019, the National Development Council proposed the "National Strategic Plan for Regional Revitalization" based on the experience of Japan. They are promoting regional revitalization through five strategies: enterprise investment, technological introduction, integration of ministry resources, social participation, and brand-building. The project is expected to unite local communities, enhance the pull of the countryside, relieve population pressure in the capital, integrate local resources, form a wide-area economic circle, and achieve the goal of balancing urban and rural development in Taiwan (National Development Council, 2019). "National Strategic Plan for Regional Revitalization" encourages enterprises to fulfill their corporate social responsibilities (CSR) based on their hometown feelings and adopt regional revitalization businesses to assist local development through the technology, capital, management experience, and capabilities owned by enterprises. Raise funds for local governments to use for local development. An enterprise may donate money directly or indirectly to the local government to continuously support regional revitalization (Executive Yuan, 2019).

Taiwan and Japan are also experiencing population disparity between rural and urban areas, lack of employment opportunities in rural areas, and immigration. In order to address these issues, each country's government encourages private sector participation in regional industrial cooperation, the promotion of local brands, the provision of local employment opportunities, and the building of local featured industries to overturn this trend and bring more tourists to the country. Are there any motivations for enterprises to participate in the regional revitalization process? Is there any interaction between them and the local government and residents? Are there any key actors who influence the success or failure of regional revitalization? Are there any challenges that enterprises have faced in the participation process and how have they overcome them? By clarifying the above issues, this study can better understand how enterprises invest in regional revitalization and its benefits to that process. Furthermore, this research also conducted interviews with Taiwanese enterprises to understand their views on the above issues. This study analyzes Japanese enterprises' investment strategies and effectiveness in regional revitalization through literature review. It is a reference for encouraging enterprises to invest in regional revitalization.

This paper analyzes the theory, literature, and policies regarding regional revitalization in Taiwan and Japan. In addition, by conducting in-depth interviews with policymakers and enterprises involved in regional revitalization, we have gained an understanding of the policymakers' expectations about the benefits of enterprises participating in regional revitalization and the mode and effectiveness of enterprises participating in regional revitalization. A key objective of this paper is to propose strategies to facilitate the investment of enterprises in local entrepreneurship, to assist and guide local development through

enterprise investment, to establish a conducive living and working environment, to encourage young people to settle and work in villages, and to achieve the goal of local entrepreneurship, which contributes to the region's sustainable development. The article is divided into six chapters, with complete background after the first section and in the second section, the authors review relevant literature, including the evolution of local creation systems in Taiwan and Japan and an analysis of the roles played by the various actors in local creation, including government, community organizations, residents and businesses. The third section describes case studies of companies involved in regional revitalization in Taiwan and Japan are described. The fourth section provides an overview of the research design. The fifth section presents research results, discussion, and strategies to encourage enterprises to invest in regional revitalization, and the final section contains conclusions and recommendations.

2. LITERATURE REVIEW

2.1 Evolution of Regional Revitalization Systems-Japan

The Japanese perspective on regional revitalization can be traced to Hiroya Masuda's book "The Theory of Place Extinction." According to the book, if the current population growth in Tokyo is not halted, the entire Japanese population will flow to Tokyo, creating a so-called "pole society." With a lower birth rate, Japan will likely have less than one-fifth of its population by 2100 (Tatsunosuke, 2016). Population decline has significant impacts on the economy and society. Urbanization has resulted in a high concentration of people in large cities such as Tokyo (Mihiro & Toru, 2016). By 2040, more than half of Japan's townships may disappear due to rural population decline. Japanese Prime Minister Shinzo Abe proposed "regional revitalization" as a policy to revitalize the local economy, also known as "local Abenomics."

The Cabinet Office established the City, People, and Job Revitalization Headquarters in 2014 and appointed a Minister for regional revitalization. It promulgated the "Town, People, and Job Revitalization Law." This law encourages the local population to return to the area where it once lived. It also generates jobs and establishes a positive cycle between "towns, people, and jobs." Only through job opportunities, a suitable living environment, and attracting people back to towns and cities can rural population outflows be resolved entirely, unlike the "street-making movement" of the past, which focused only on the intrinsic needs of the community and the pursuit of a sense of community. Regional revitalization primarily concerned creating stable local employment opportunities to encourage district revitalization. In other words, regional revitalization involves creativity and regeneration. These initiatives do not rely on government subsidies but invest public resources to promote long-term economic revitalization rather than short-term activities.

In Japan, regional revitalization is a "top-down" national strategy aimed at meeting three objectives: first, alleviating the burden on Japanese society resulting from a decline in consumption and economic power as a result of a declining population; second, to achieve the people's hope of reducing the rate of population decline and maintaining a population of 100 million by 2060; and third, to ensure the vitality of Japanese society by reducing the rate of population decline and promoting regional revitalization (Japan Cabinet Secretariat, 2019). "Restore local communities' vitality for sustainable growth" is the specific strategy. By creating a peaceful environment where all citizens can live and prosper, cultivating human resources for local advancement, creating a distinctive local identity, and developing diverse employment opportunities, regional revitalization is essential to achieving these objectives.

2.2 Evolution of Regional Revitalization Systems-Taiwan

As in Japan, Taiwan is experiencing urbanization, aging, and child reduction. Since the 1980s, Taiwan has invested resources in rural areas facing population exodus and economic disadvantages to alleviate regional development imbalances. Taiwan has 368 townships, of which 134 account for 66.5% of its land area but only 11.6% of its population. These towns are primarily in non-urban areas in the central, southern, and eastern regions (Chen, 2019). Taiwan's population peaked in 2019 (about 23.6 million people) and gradually declined due to an aging population and lower birth rates. The "National Strategic Plan for Regional Revitalization" has been developed, with 2019 being the first year of regional revitalization. It is proposed by the Executive Yuan and promoted by the National Development Council (NDC) that a Regional Revitalization Plan be implemented, with "corporate investment in hometown," "technology introduction," "integration of ministry revitalization resources," "community participation in revitalization" and "brand building" being strategic tools for retaining residents and developing local industries.

Three main strategies exist to revitalize a region. Firstly, to optimize local industries and jobs. Creating community "jobs" and "people" will create a virtuous cycle, enabling the community to meet its needs, ultimately leading to its prosperity. Therefore, it is necessary to identify local characteristics to optimize local industries and foster community growth. Develop products with local characteristics and develop talents capable of solving regional problems. Secondly, the government needs to construct rural cities and enhance rural areas. Education, medical care, and related public services will be enhanced to maintain remote areas' essential living functions. Last but not least, expanding international connections and promoting local brands. Furthermore, strengthen and expands the linkages between the domestic and international markets while exploring local characteristics. This strategy includes building local brands, creating products and experiential services exclusive to the local market, and incorporating technology into marketing and digital services.

Taiwan's promotion method differs from Japan's regional revitalization system, in which the community proposes plans based on their needs the government provides professional assistance and resources to relevant enterprises to compensate for the lack of local proposals and plans. This will depend on local development needs, offer new opportunities for local development, and resolve severe imbalances in urban and rural population distribution.

Regarding the similarities and differences between Taiwan and Japan regarding revitalizing regional economies, Japan adopted three strategies: information support, human resource support, and financial support. Taiwan's five strategies include corporate investment in hometowns, technology introduction, integration of ministry creativity resources, social participation, and brand building. A "Minister of Regional Revitalization" and a "Town, People and Work Revitalization Headquarters" are dedicated promotion organizations in Japan. Taiwan has no dedicated promotion organization or laws. The National Development Council uses its existing organizational structure with local governments' assistance to promote the project. Japan promotes local development top-down, with the government providing financial and human resources. Taiwan's government has adopted a bottom-up approach, where localities propose projects based on their specific needs, and the government provides professional assistance and introduces corporate resources as necessary to aid local development.

2.3 The Role of Key Actors in Regional Revitalization

Government, community organizations, residents, and enterprises significantly contribute to regional revitalization. The role of government includes drafting policy directions, relevant laws and regulations, and promoting local economic development through investment and construction. It is also a model Japan has adopted, where localities can explore local characteristics and initiate the revitalization of businesses. Then the government provides funding, human resources, and technology or encourages enterprises to invest in assisting regional revitalization and lead creative industries in the community (National

Development Council, 2019).

From the initial industry attempt to transform, communities have developed opportunities for cross-domain cooperation by fighting for government resources, demonstrating that "people" promote regional revitalization. Currently, localities face a significant problem of insufficient human resources, requiring external support and assistance such as experts, scholars, and government programs. Industrial transformation and innovation can also contribute to the attractiveness of the place. These actions will attract more related industries or groups to the area to benefit the whole area. By connecting with various actors within and outside the community, community leaders can move rapidly forward with regional development initiatives (Onitsuka & Hoshino, 2018). Based on a comprehensive assessment of the surrounding resources, the promoters will determine the appropriate direction for regional revitalization. Considering the geographical factors, cultural characteristics, and technology popularization, this objective will establish regional revitalization industries characteristic of the region.

Public policy affects the implementation of local plans and the degree of investment in regional affairs. Local organizations are the main driving force behind community growth. Local organizations, such as regional development associations, are established by residents through their own business capabilities or with outside support. These organizations invest jointly in regional development. Commercial activity can create clusters and attract visitors. As the surrounding area's value increases, more people will be attracted. Cooperation between regional organizations and enterprises can provide better services and indirectly attract investors. By developing of a regional reputation, industry profitability will boost local economic growth (Hitoshi, 2017).

In addition to relying on input from the government, residents, and regional organizations in regional revitalization, it is crucial to establish local characteristics by involving relevant management teams and enterprises in better using original local resources and introducing innovations (Chuang et al., 2021). Among the elements of regional revitalization are enterprises, institutions, knowledge exchange areas, and innovation policies. Enterprises include local and outside companies. Local organizations include local cooperatives, production, and marketing firms in rural areas. Among these elements, the most innovative energy comes from outside enterprises. Local organizations and enterprises can integrate regional revitalization contexts into their business operations. Involving outside enterprises can stimulate multiple innovative energies, and creative ideas can be introduced to the community. The Taiwan Yonglin Foundation proposes a regional revitalization operating strategy, with organic planting, employment opportunities, and establishing core brand values at Yonglin Farm. Although the farm was initially built for disaster relief, it has become a tourist attraction where tourists can purchase organic products to promote the local economy. Under the same concept, enterprises may also participate in regional revitalization while fulfilling their corporate social responsibility obligations (Chen & Pan, 2022).

3. CASE STUDY

This study analyzes four case studies in Taiwan and Japan as examples of regional revitalization.

3.1 Case in Taiwan

3.1.1 Cha Tzu Tang

Cha Tzu Tang is an SME that produces camellia oil products. Since it is mostly imported from Taiwan, they are looking for areas planted with camellia oil trees to establish a local brand and land connections. Cha Tzu Tang is located in a suitable area for planting camellia oil trees in Chaoyang Community, Suao Town, Yilan. This community gradually declined due to population migration and a lack of external stimulation.

Through cooperation with Cha Tzu Tang, who signed the contract for farming in 2016, the company provided a professional team of agricultural planners to improve camellia oil tree planting techniques and income. For farmers, this can revitalize their hometown land and ensure a steady income stream.

In cooperation with the Chaoyang Community, Cha Tzu Tang developed a regional revitalization strategy of "Enterprise Investment in Hometown" and "Brand Building." Marketing and talent cultivation make the community not only a place for contract farming but also a field for corporate brands that care about social issues and work to revitalize places.

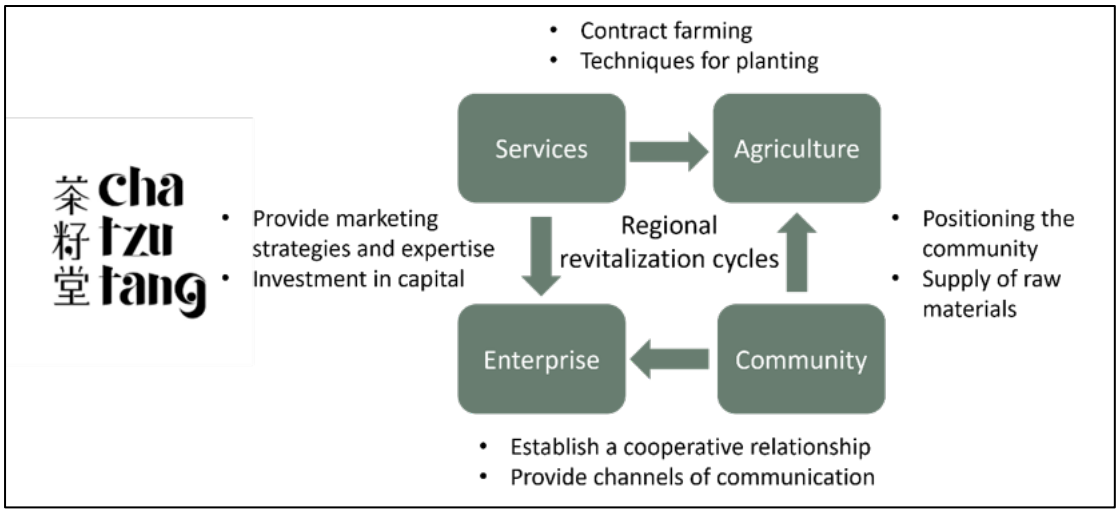

Figure 1 Cha Tzu Tang regional revitalization model

3.1.2 Bluemagpie Tea Social Enterprise

Bluemagpie Tea promotes eco-villages as a social enterprise based on the "valley recovery" concept. The investment process of regional revitalization can be divided into two stages. The first stage focuses on providing income stability, which encourages the management team to become a social enterprise and expand investments; the second stage is to develop a factory area to manage production and operation processes efficiently and establish standard procedures for production and marketing. The enterprise employs three main business methods to attract tea farmers to join its pesticide-free planting program: individual purchase, corporate adoption, and agronomy experience services. Furthermore, they cooperate with enterprises that promote the ecological environment. They seek enterprises with a concept of "contributing to the environment and society, “and purchase tea gardens and farmland in units of area. Aside from providing a stable income for local tea farmers, it also maintains a non-toxic ecological environment and contributes some of the proceeds to the community, fulfilling the enterprise's corporate social responsibility.

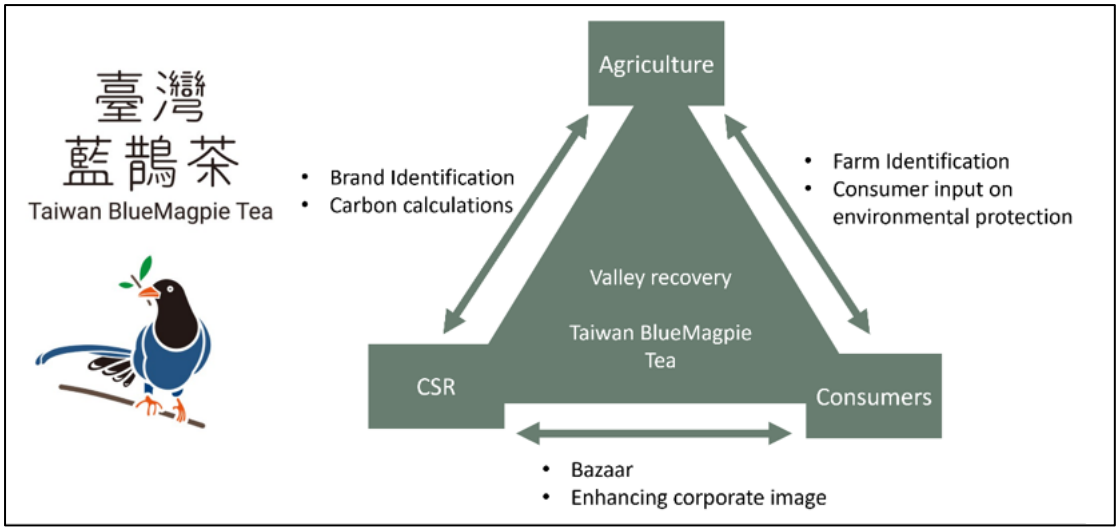

Figure 2 Bluemagpie Tea regional revitalization model (Adapted from Social Innovation)

3.2 Case in Japan

3.2.1 Yamagata Prefecture Asahi-machi

Located in the Kyushu region of Japan, Asahi-machi exports wine and apples. However, due to the economic bubble in Japan, the price of apples has been falling. As a result, companies have started promoting the export branding of apple products to revitalize the local industry.

A corporate branding presentation emphasizes that a brand represents memory, association, agreement, and differentiation. Brand building entails establishing an attractive environment. Improved attractiveness of places may alleviate the problem of aging populations and emigration. In 2013, they established brand image guidelines for enterprises, businesses, farmhouses, and offices in the town. To achieve mutual benefit and increase the region's value through strategies such as local branding, brand universities, and hometown tax systems.

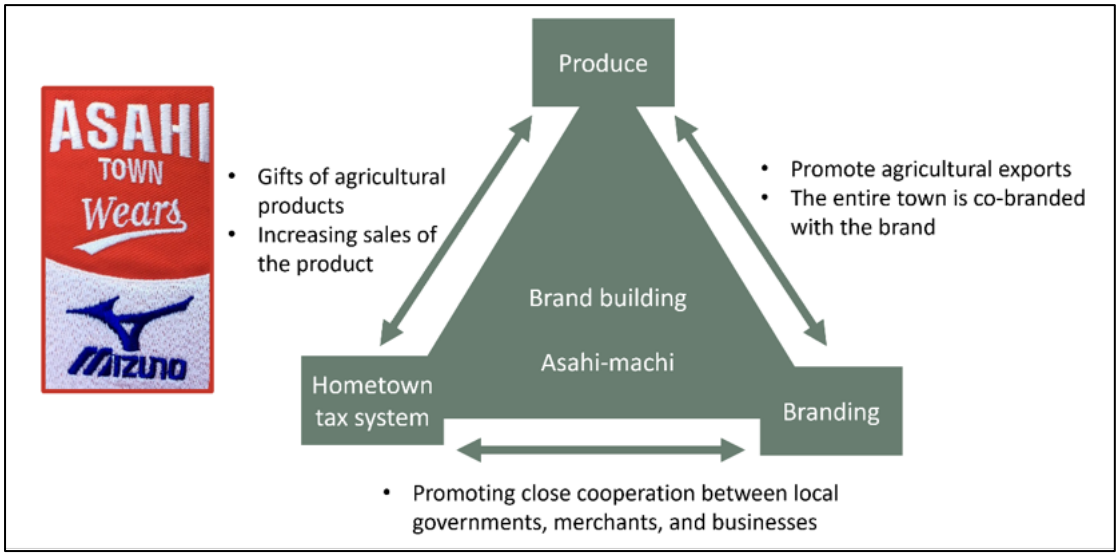

Figure 3 Asahi's regional revitalization model

3.2.2 Tokushima Prefecture Kamiyama-cho

Kamiyama established the "Tokushima International Cultural Village" to address employment decline as part of its Regional Revitalization Plan. The village is built on a cultural and artistic axis, and external artistic exchanges have attracted creators to the arts. In the later stages, the village developed a network of talented people living and working and set up a website to provide information on local resources for people and artists wishing to move to the village. Several IT companies have also set up satellite offices here to provide employees with better living environments. At the same time, the city can also perform the same level of software construction. Knowledge and information technology introduced by Kamiyama are the key to revitalizing the local economy.

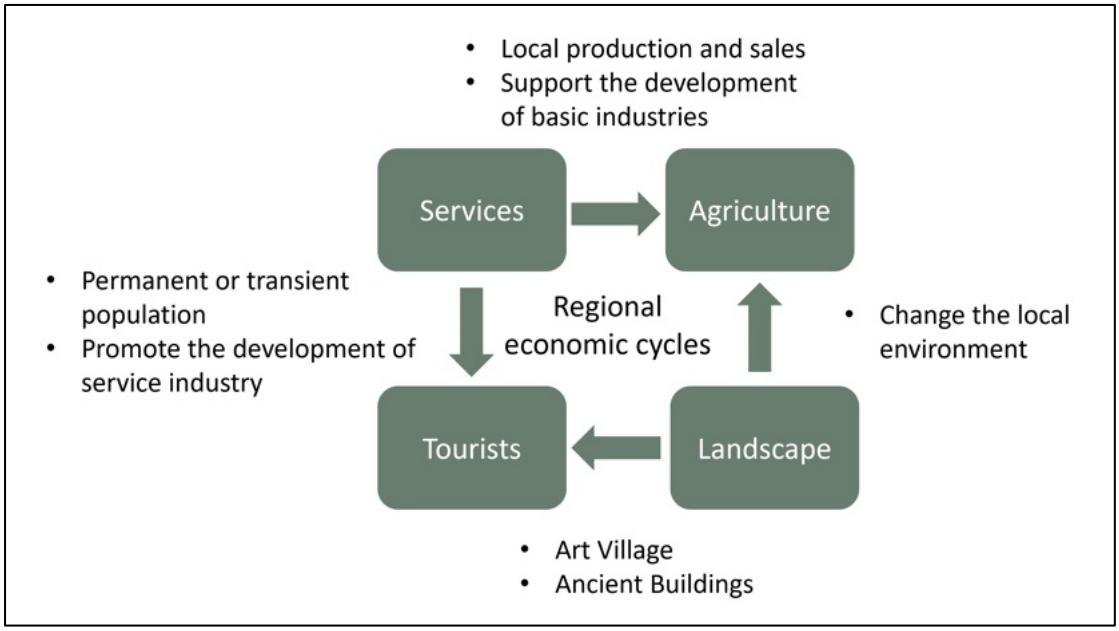

Figure 4 Kamiyama's regional revitalization model (Adapted from Shinya Ominami)

4. RESEARCH DESIGN

In this article, in-depth interviews are conducted with key stakeholders in Taiwan on how to promote regional revitalization, including policymakers and enterprises. In-depth interviews, interviewees, dates, and interview topics are described below.

4.1 In-Depth Interviews

Researchers usually collect and analyze a large amount of literature before conducting an in-depth interview, then creating a topic based on the research subject (Deterding, 2021). Understand the interviewee's views, experiences, feelings, or other derivative meanings on the interview topic through a one-to-one dialogue with the researcher (Rutledge & Hogg, 2020).

This study interviewed the makers of the regional revitalization system and private entrepreneurs involved in regional revitalization (as shown in Table 1). The "National Development Commission" is the central component responsible for regional revitalization promotion. Interviews provide insight into the revitalization process, the conception of the regional revitalization system, the promotion of the program, and the expectations for the effectiveness of enterprises' investment in regional revitalization. Interviews with enterprises provide insights into the motivations, processes, and interactions between enterprises and other actors involved in revitalization.

Table 1 List of in-depth interviews

Sector	Interviewee	Unit name	Interview date	Reason for sampling
Public sector	Su Section Chief	National Development Council	2023/3/13	The supervisor is responsible for regional revitalization policies formulation and promotion.
	Chen Specialist		2023/3/13	
Private Enterprise	Chao CEO	Cha Tzu Tang	2023/3/25	Develop and implement business plans for regional revitalization and maintain long-term relationships with the community.
	Lin COO	Blue Magpie Tea	2023/3/15	A person is responsible for establishing marketing channels and deciding on an operation strategy. Identify and engage with other companies that recognize the brand value and long-term subscription products.

4.2 Interview Questions Outlined

This article, uses a semi-structured interview method to ask interviewees about regional revitalization issues. Table 2 shows the interview topics. All interviewees are free to express their opinions on the topics discussed during the interview.

Table 2 List of interview outline

Interviewee	Interview outline
National Development Council (NDC)	1. From the perspective of the NDC, what are the key factors that influence companies' decision to participate in regional revitalization? 2. What is the role of the NDC in enterprises' participation in regional revitalization? 3. When enterprises participate in regional revitalization, how do they interact with local groups, residents, local governments, and the National Development Council? Are there any key actors? 4. Which results do you consider successful examples of enterprises participating in regional revitalization? Does any case stand out as impressive? 5. In this study, the benefits of enterprise investment are examined through indicators of policy, economy, society, and technology. What indicators do the companies involve in regional revitalization possess? Which indicators are missing? 5.1 Policy: A) Ability to propose projects, B) Policy input effectiveness, C) Participate in local organization, D) Identify policy resources, E) Participation of local governments, F) Continuity of resources, G) KPI

	evaluation 5.2 Economy: A) Share the enterprise's core competencies, B) Challenges and adversity shared, C) Provide employment opportunities, D) Connect peripheral resources, E) Enhance business cooperation, F) Industrial upgrading, G) Continuity of Corporate Resources 5.3 Social: A) Participate in local groups, B) Engage with local groups' opinions, C) Bring the related population, D) Building regional brands, E) Collaborate with the public and private sectors, F) Locate local gaps, G) Industrial cluster 5.4 Technology: A) Digital transformation, B) Technical improvement 6. Among the orientations mentioned earlier and indicators, which objectives does the National Development Council intend to achieve when it promotes and attracts enterprises to participate in regional revitalization? 7. What challenges have been encountered during Taiwan's regional revitalization policy implementation, what challenges have been encountered? Regional revitalization laws are widely believed to facilitate implementation. What is your opinion?
Private Enterprise	1. What were the motivations and key factors behind the initial decision to invest in regional revitalization? 2. In the early stages of the enterprise's development, was it assisted by external resources (such as the central government, local government, or local organization)? 3. How have you encountered difficulties investing in regional revitalization so far? And then how do you overcome them? 4. How does the enterprise interact with residents, local groups, and the government? How do you collaborate? Are there any key opinion leaders? 5. What services would you like the government to provide? To help enterprises invest in regional revitalization, for example, by providing financial incentives, funds, and upgraded technology? 6. Is the corporation's involvement in regional revitalization promoting local business cooperation and industrial clusters? 7. How does the company promote its popularity? 8. Do you have any plans for follow-up investments in the revitalization project? 9. In this study, the benefits of enterprise investment are examined through of policy, economy, society, and technology indicators. What indicators do the companies involve in regional revitalization possess? Which indicators are missing? 9.1 Policy: A) Ability to propose projects, B) Policy input effectiveness, C) Participate in local organization, D) Identify policy resources, E)

	Participation of local governments, F) Continuity of resources, G) KPI evaluation 9.2 Economy: A) Share the enterprise's core competencies, B) Challenges and adversity shared, C) Provide employment opportunities, D) Connect peripheral resources, E) Enhance business cooperation, F) Industrial upgrading G) Continuity of Corporate Resources 9.3 Social: A) Participate in local groups, B) Engage with local groups' opinions, C) Bring the related population, D) Building regional brands, E) Collaborate with the public and private sectors, F) Locate local gaps, G) Industrial cluster 9.4 Technology: A) Digital transformation, B) Technical improvement 10. Would you like to make suggestions regarding the government's regional revitalization policy?

5. RESULTS AND DISCUSSION OF RESEARCH

This paper addresses the study's target through the interview findings. Following discussion are some characteristics of enterprise support for and some strategies to promote enterprise support for regional revitalization:

5.1 Characteristics of Enterprises Investing in Regional Revitalization

5.1.1 Enterprise Investment Motivations and Key Factors

These are some of the motivations and key factors that drive enterprises to invest in regional revitalization: first, localities and enterprises share a common business philosophy, whether they want to farm sustainably or perfect local public facilities, as their objectives and development plans are similar, which will result in regional revitalization and follow-up action. Second, all opinion leaders, including the village head and the director of the local development association, will have to initiate the promotion, take the initiative to know and invite enterprises to settle in, communicate and negotiate among participants in various locations to promote their work effectively. Thirdly, the participation of enterprises in regional revitalization is more attractive if it can enhance their brand image or is related to their own business to achieve a win-win situation for both the local community and the enterprises.

5.1.2 Issues faced by enterprises investing in regional revitalization and solutions

Since the government has provided funding for enterprises to apply for regional revitalization projects, they also have specific capital capabilities. Enterprises say the problem of investing in regional revitalization does not stem from a lack of funds. The challenge remains that the competitiveness of regional revitalization businesses still needs to catch up to those of large enterprises. Regional revitalization businesses have cultivated many local and ESG talents, but are not as good as the technology industry or large enterprises in talent cultivation, salary, and benefits. Many talents have been transferred to metropolitan cities and large enterprises. Businesses suggest that public sector organizations should view the regional revitalization business as the cradle of transformational talents, develop supporting policies and counseling mechanisms to retain local talent, and dedicate more resources to talent cultivation so that young people can settle and the community can continue to operate and grow.

5.1.3 Impact of enterprise participation in regional revitalization on the return of the population

Young people returning to their hometowns is one of the indicators of regional revitalization policies' effectiveness. However, both the government and enterprises agree that it is difficult to quantify and takes a lot of time to measure this achievement. Although it is not currently possible to attract a large youth population, it has clearly added vitality to the community. Local associations have also experienced steady employee increases. It is evident from this that regional revitalization contributes to increased employment opportunities and a return to population growth in a region.

5.1.4 Proposals for promoting regional revitalization policies

In the government's opinion, the difficulty in implementing Taiwan's regional revitalization policy lies in too many executive departments. As the integrator, NDC sometimes needs help distinguishing its roles and responsibilities. There are different kinds of revitalization locations, each with its characteristics and needs. Each ministry may provide the needs of different places according to its business sphere; however, because of too many subsidizing units, the plan cannot follow the goals of the competent authority. Regarding the law, enterprises believe policies and norms tailored to local conditions can address regional revitalization problems more effectively than big-scale urban planning policies and regulations.

5.2 Analyzing Taiwan & Japan's Enterprise Investments in Regional Revitalization

As shown in Table 2, the study focuses on four major indicators, including policy, economy, society, and technology, to measure regional revitalization benefits. Based on a literature review and interviews, this study compares four case areas in Taiwan and Japan, as shown in Table 3.

In terms of policy, the four enterprise cases in Taiwan and Japan can propose projects. These include the "Road to Revival of Camellia Oil" project, the valley recovery initiative, regional branding promotion, and the Tokushima Regional Revitalization Plan. They all have KPI evaluations capability such as examining the local DNA, local tea farmers agreeing with the concept of transformation, integrating the brand into the town's industry, and transforming empty houses into satellite offices. In addition, the enterprises in these four regions are all investing in regional revitalization for the first time, so they need continuity of resources ability in a short time. As for identifying policy resources, Taiwanese enterprises often receive information about regional revitalization from government units that have applied for subsidies.

In terms of economy, Taiwan provides agricultural technology for farmers. Japan shares how to promote local brands and uses various network infrastructures to share the enterprise's core competencies. Taiwan raises funds for the region and solves sales channel problems; Japan combines brands and local specialty products. Taiwan signs contracts with farmers and attracts business investment; Japan collaborates with well-known brands to promote business cooperation to share challenges and adversity. Compared with Japan's enterprises, Taiwan lacks the ability to share its core competencies and connect peripheral resources with regional revitalization regions.

Local groups such as community development and exchange associations are invited to participate in social aspects. In bringing related population, Taiwan only has a small number of enterprise employees, whereas Japan has artists and employees stationed in enterprises. Taiwan identifies the local gap as needing more marketing channels, while Japan experiences serious aging and population migration issues. Moreover, Taiwan also needs to gain the ability to engage with local groups' opinions and collaborate with the public and private sectors. Taiwan and Japan Finally, Japan and Taiwan need to improve their ability to call on the same industries.

In terms of technology, Taiwan and Japan have achieved digital transformation through digital channel marketing, online art exhibitions, and remote offices. Some of Taiwan's enterprises plan to use big data and the Internet of Things to set up digital platforms to assist in the future.

Table 3 Benefits of regional revitalization compared between Taiwanese and Japanese businesses

Aspect	Indicator	Cha Tzu Tang	Blue Magpie Tea	Asahi-machi	Kamiyama-cho
Policy	Ability to propose projects	○	○	○	○
	Policy input effectiveness	○	○	○	○
	Participate in local organization	○	○	X	X
	Identify policy resources	○	○	X	○
	Participation of local governments	○	○	○	X
	Continuity of resources	X	X	X	X
	KPI evaluation	○	○	○	○
Economy	Share the enterprise's core competencies	○	X	○	○
	Challenges and adversity shared	○	○	○	X
	Provide employment opportunities	○	X	○	○
	Connect peripheral resources	○	X	○	○
	Enhance business cooperation	○	○	○	X
	Industrial upgrading	○	○	○	○
Social	Participate in local groups	○	○	○	○
	Engage with local groups' opinions	○	X	○	X
	Bring the related population	○	○	X	○
	Building regional brands	○	○	○	X
	Collaborate with the public and private sectors	○	X	○	○

	Locate local gaps	○	○	○	○
	Industrial cluster	X	X	X	○
Technology	Digital transformation	○	○	○	○
	Technical improvement	○	X	X	○

Note: ○: Has benefitted from the indicator, X: Has no benefit from the indicator

5.3 Strategies to Enhance Corporate Commitment in Regional Revitalization

The following strategic suggestions are based on the interview mentioned above results of regional revitalization enterprises in Taiwan and a comparative analysis of regional revitalization enterprises in Taiwan and Japan:

5.3.1 Matching enterprises and regional revitalization businesses that share the same development philosophy

In addition to local cohesion and identity, the quality of communication and cooperation between enterprises and localities is considered crucial to developing a regional revitalization business by both the government and enterprises. Therefore, strengthening the integration and promotion of media platforms and organizing online and offline events for enterprises to get to know local organizations or teams are all ways to promote local awareness and commitment to regional revitalization.

5.3.2 Enhance leaders' understanding of regional revitalization projects and their ability to communicate and coordinate

Local or regional key leaders contribute to community development and growth by providing leadership (McKinsey & Company, 1994; OECD, 2012). Based on interviews with enterprises and Japanese case studies. The evaluation shows that regional revitalization can last long due to local leaders' participation or initiation, such as village and neighborhood representatives. These leaders promote cooperation between localities, enterprises, and governments. Apart from acting as a bridge between enterprises, local communities, and the government, active local opinion leaders also play a vital role in the success of local entrepreneurship through their care for the local community and their hometown. Therefore, the government should enhance the understanding of local opinion leaders and their ability to communicate and coordinate with each other so that the business of regional revitalization can be sustained with the cooperation of the internal (community and local) and external (government and enterprises).

5.3.3 Suggest the government establish a regional revitalization designated authority

The National Development Council of the Executive Yuan acts as the host organization in Taiwan's promotion of the revitalization business and adopts the method of project planning to promote it. It mainly serves as an information provider for regional revitalization teams, enterprises, and government agencies. It provides information about local innovation to various government agencies. Enterprises also see the National Development Council's integration and coordination services as more valuable than financial

subsidies. Accordingly, Taiwan should look at Japan's experience and establish a dedicated agency to promote regional revitalization. This agency should conduct policies, law enforcement, and resource integration, providing businesses and localities with follow-up results tracking and assistance. These actions will reduce the time enterprises and regional revitalization teams spend on exploration, application processes, communication, and negotiation.

6. CONCLUSIONS

This paper compares the regional revitalization systems of Taiwan and Japan, interviewing governments and enterprises and conducting case studies from four perspectives: policy, economic, social, and technological, understanding the respective strengths and weaknesses of Taiwanese and Japanese enterprises in the regional revitalization business. The support of residents, local organizations, government, and enterprises are all essential to the success of regional revitalization, including the cohesion of local residents, the support and motivation of local organizations, government policies, and resource subsidies, and finally, the expertise of enterprises in terms of resources, capital, management and marketing planning, and the use of brand building experience to help local areas find their local positioning and characteristics. These actions will bring economic development opportunities, increase employment opportunities and enable the young population to start returning to and settling in their hometowns.

Through the cooperation of key actors, Taiwan's regional revitalization efforts have achieved initial results in a short period. After the development of the regional revitalization business has stabilized, it should be run by enterprises and local communities together, freeing them from dependence on the government and enabling them to achieve sustainability through their operations. The coordination, integration, and adaptation between enterprises and creative organizations are also crucial for the sustainable development of creative industries (Neumeier, 2017). The findings of this paper can be used as a reference for countries around the world to promote regional revitalization and to evaluate the effectiveness of introducing enterprises into regional revitalization. The findings of this paper can be used as a reference for countries around the world to promote regional revitalization and to evaluate the effectiveness of introducing enterprises into regional revitalization.

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LEGAL CHALLENGES FOR LAND POLICIES IN MEXICO. HYPERMODERNITY AND NEOLIBERALISM IN THE URBAN EXPANSION OF MÉRIDA, YUCATÁN

YOLANDA FERNÁNDEZ-MARTÍNEZ

ABSTRACT

Mexican cities are constantly dealing with the phenomenon of urban sprawl while local governments are trying to provide answers to the lack of vision of urban norms. Most of the cities do not have urban regulations. In the case of Yucatán less than the 10% of the cities have instruments for planning the land use, but unfortunately, they still need to improve their land use monitoring strategies.

Consequently, uncertainty and the speed of change are the biggest challenges for the planning process of our cities. Specially Mérida, Yucatan in the southeast of Mexico, which is dealing with three main phenomena. The first one is the urban sprawl linking with real estate growth; the second one is an international and national migration, which has an impact on the value of land, an increase in the supply of housing and in the number of vehicles, against the demand and need of the people. And the third one is about the water supply, distribution and contamination.

For this proposal, I will focus in the first one phenomenon, to explain from a morphological approach the transformation of the city in the last two decades from the proliferation of closed urbanizations (gated communities) and mixed-use vertical buildings, and how this urban model of lifestyle is consolidated a new scenario of hypermodernity (Lipovestky, 2004), far removed from the needs of the population.

Also, the era of the pandemic, brought us academics more doubts about what we had been teaching about the city and how we could have connected urban problems with a rigorous critique of urban norms, using a new approach to study the city.

Keywords: urban sprawl, planning regulation, urban morphology.

RECYCLING BEHAVIOR AND PLANNING IN COMMERCIAL ENTERPRISES: THE CASE OF RASIMPASA

MELDA KARADEMİR

ABSTRACT

Increasing consumption along with population growth has led to a significant reduction in resources. With the increase in consumption, sustainability issues come to the forefront. With the European Green Deal, sustainability is becoming one of the important topics of more countries. Recycling is one of the key elements for ensuring environmental sustainability. Waste recycling has emerged as an important component of environmentally sound practices in both developed and developing countries. By 2020, global solid waste generation is projected to increase to 2.24 billion metric tons, or 0.79 kilograms per person per day. Annual garbage generation is projected to reach 3.88 billion metric tons by 2050, up 73% from 2020 levels (World Bank, Solid Waste Management, February 11, 2022). Between 75% and 90% of all garbage generated in urban areas is disposed of in open landfills, with negative impacts on public health, air quality, groundwater quality, soil quality and the economy (Vijayan et al, 2023). The way we produce and consume has a major impact on the amount of waste we produce as a society. While recycling behavior gives us information about the current situation of that region, it can also be said that recycling behavior provides an important input for planning. In this study, the awareness and recycling behavior of commercial enterprises in the Rasimpaşa neighborhood, Kadıköy were analyzed. During the interviews with the commercial enterprises located in the Rasimpaşa neighborhood, the opinions of the owners of commercial enterprises were taken on issues such as waste separation, presence of recycling bins, and lack of incentives. Laws and regulations need to be in place to encourage recycling and support recycling behavior.

Keywords: Sustainability, Recycling Behavior, Urban Planning, Waste Management, Kadıköy

THE IMPACT OF THE COVID-19 PANDEMIC ON URBAN ENVIRONMENTS: CHALLENGES AND OPPORTUNITIES

FULAY UYSAL BILGE

ABSTRACT

Globally, the COVID-19 epidemic has had a significant influence on cities, posing both benefits and challenges for urban environments. This article discusses potential long-term ramifications for urban planning and design while examining the pandemic's diverse effects on cities. The study intends to offer insights into the transformational influence of the pandemic on urban settings and propose methods for creating resilient and sustainable cities in the post-pandemic period by examining changes in urban dynamics and public spaces.

Cities have been severely impacted by the COVID-19 pandemic because they serve as hubs of social, economic, and cultural activity. In addition to recognizing new promising developments and chances for urban transformation, this essay aims to comprehend and describe the difficulties experienced by cities during this unparalleled health crisis. The transition to remote labor and online services is one of the key changes in urban dynamics brought forth by the pandemic. The future of conventional urban structures, offices, commercial areas, and urban mobility have all been raised by this. The dynamics of urban life and transportation practices are being reevaluated as more individuals work from home, which could have an impact on urban planning methods.

Public areas have also come under emphasis as a result of the pandemic. Physical barriers and gathering restrictions have led to a decline in the use of parks, squares, and recreational places, which were previously thriving hubs of social interaction. This necessitates redesigning public areas to make them approachable, flexible, and secure for potential health emergencies. Design and programming flexibility can help create resilient, welcoming public spaces that cater to the changing demands of urban populations.

The epidemic has given potential for urban development despite the difficulties it has brought. Untapped potential exists in the areas of revitalizing underutilized areas, supporting regional and resilient economies, and incorporating technology to improve urban management and governance. Cities can reinvent their future and create more inclusive, equitable, and healthy communities by taking the pandemic's lessons to heart.

In conclusion, the COVID-19 pandemic has made it necessary to reconsider the resilience, adaptability, and sustainability of urban ecosystems. This essay focuses on building cities that can better handle upcoming

problems while prioritizing the wellbeing and quality of life of all urban residents and underlines the significance of learning from this catastrophe. It has also become apparent that urban green spaces and natural ecosystems need to be preserved and improved. The support of the public's physical and mental health is greatly aided by green spaces. Parks and natural spaces have developed into safe havens and peaceful retreats during the pandemic. Therefore, maintaining urban green spaces and ensuring their accessibility will improve community wellbeing. Finally, cities must learn from crises in order to become more sustainable and resilient.

Keywords: COVID-19 pandemic, urban planning, public spaces, urban transformation.

CITIES OF THE METAVERSE - A QUESTION OF AUTHENTICITY

MUSTAPHA EL MOUSSAOUI

ABSTRACT

The emergence of the metaverse has brought forth a new dimension of urbanization, where virtual cities can be created and inhabited by users from around the world. As these virtual cities become more advanced and complex, questions arise about the authenticity of these urban environments. This paper examines the concept of authenticity in the context of metaverse cities, exploring how it is constructed and negotiated by users, developers, and other stakeholders. Through a critical analysis of virtual urban environments in the metaverse, this paper argues that the notion of authenticity is subjective and contingent, shaped by factors such as cultural background, personal experiences, and social norms. The paper also examines the implications of authenticity debates for the design and governance of virtual cities, as well as the broader implications for urban planning and development in the physical world. By questioning the concept of authenticity in metaverse cities, this paper contributes to a deeper understanding of the role of virtual environments in shaping our perceptions and experiences of urban spaces.

Keywords: Cities; Authenticity; Virtual Reality; Existential Well-Being; Public Space