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Which New Horizons?
Guest Editorial

Ayşe ŞENTÜRER, Belkıs ULUOĞLU

During the last two decades, starting with the beginning of the second millennium, architectural studies have turned their faces to a new paradigm denouncing theory, announcing that we have entered an innovative and intelligent design era, which is the end of theory. "After theory" discussions dismantled the theory studies in architecture for a long time. Now, people are happily declaring that it is back. It is back, yet in a different mood: critical, intellectual challenges have created a transdisciplinary and pluralistic medium for alternative theories to flourish. Unlike previous attempts, theory is now more in connection with practice and the material world. With this in mind, as members of the Architectural Design unit of ITU, we feel the challenge to take the lead to commence a medium for deconstructing and reconstructing theory, with the theme "New Horizons" in architecture.

This issue aims to promote discussions, conjectures, and theories of cutting-edge research in architecture and architectural design. The open call of the special issue of A|Z has included areas of study on history, theory, and criticism of architecture; architectural design theories and methods; and environmental, social, and cultural studies in architectural design.

As we have promoted, papers received have gathered around themes that approached the field from various perspectives: involving new materialism, drawing from thermodynamic principles to view the world as an interconnected whole, taking the standpoint of after-theory to incorporate art and space and, in another article, its implications for landscape architecture in Türkiye, and post-criticality, which all consider the world in a flux of relations and take a critical stance. Ayşegül Çakan and Gökçeçiçek Savaşır in *A new materialist cartography for converging architectural theory to practice,* presented a cartographic strategy as a research methodology, with transdisciplinary relations with new materialism. Eda Yeyman in *Architecture as an open field of interactions: Climatic singularities in the work of Philippe Rahm* reframes Rahm's spatial construction practices for exploring scalar jumps. Özlem Demirkan in *After-Theory Canvas: Unveiling the Representational Spaces Created by Artistic Production* discusses contemporary artworks that exemplify a significant relationship with space and incorporate spatial elements into the context of artistic production. Çisem Demirel Koyun and Ebru Erbaş Gürler look into the National Landscape Architecture Awards in Türkiye in *Between Lines and Land*, to dispute the discipline's alignment with post-theoretical thought and its departure from traditional high theory. Saadet Kök and İpek Akpınar in *21st century Urban Aesthetics in the post critical age: SANART publication* consider a movement oriented urban aesthetics.

Another group of articles took a critical stance against the control of human and nonhuman beings via space, by focusing on biopolitics and anthropocentric approaches. Emre Demirtaş and Mehtap Özbayraktar in *Laboratorization of time-space: An inquiry about the role of space in the control and reproduction of life* argue that spatial conditioning, primarily facilitated through specific architectural arrangements, is critical in colonizing living beings. Uğur Sarışen in *On the spatial Experience of Animal in Architecture: A speculative transdisciplinary inquiry* employs a speculative framework to examine how animals interact with their environment.

The following two articles have focused on the design process: the first looks into the knowledge domain of architectural design, and the second into representation as a transformative power. Nesip Ömer Erem and Alireza Kharazmi-Nezhad have searched the disciplinary evolution of architectural design by focusing on three trajectories; architecture culture, design thinking, and knowledge production in their article**,** *The Discipline Unfolding: A Thematic Lens on Disciplinary Evolution Architectural Design.* Pelin Dursun Çebi, Hande Asar, and Mustafa Mortaş

in *Transformation representations and creativity on the trail of invisible things* focused on alternative forms of representation that enable creative moments through event narratives.

Another group of studies searched for learning environments and challenged the conventional means of design education. In *Revisiting the role of listening in online architectural design studio pedagogy,* Sevgi Türkkan and İpek Avanoğlu discuss the role and potential of listening in the evolving practices of remote architectural education. Fatma İpek Ek, Deniz Engin, Gülçin Öçel, Aysu Püskülcü Aydın, and Zeynep Bavunoğlu considered the integration of metafunctions of language into basic design learning to facilitate the incorporation of physical and digital tools in *Search for a new meta-functional education pattern in basic design studios after Covid-19 pandemic.* Gülbin Lekesiz and Can Müezzinoğlu's *An approach to AI-Supported Learning in Architectural Education: Case of Speculative Space Design* attempts to integrate text-to-image artificial intelligence (AI) tools into the architectural design studio.

Only one article dealt with the social basis of design, whereas more would be expected: Ahmet Gün, Burak Pak, and Kübra Bakan in *Empowering communities through social design practices: Lessons learned from post-disaster practices in Türkiye* explored the strengths and weaknesses of existing social design practices in empowering disadvantaged communities.

The last two studies are concerned with the material production of architecture. In *Tracing Architectural Exhibitions in the Absence of Archives: The Case of Taşkışla*, Derya Yıldız and Funda Uz have explored the potential for architectural space to function as a memory-collecting "hive-mind". In *Designing Negotiation: Osep Saraf's Şişli Culture and Trade Center*, Esra Kahveci and Pelin Yoncacı Arslan examine Saraf's postmodern design approach as an act of "negotiation".

Academicians who showed interest in this call with the theme of "New Horizons" with the above-mentioned contents, took up the subject by overlapping the call emphases with the research contents they had and had the opportunity to reveal new trends in architectural theory and knowledge with their studies in the fields of space, landscape, city, art, design-representation, and architectural education. The referees who participated in the evaluation process upon our invitation, made a significant contribution to the creation of such a special issue with their evaluations that took into account the original content of the incoming papers, while also taking into account the emphases of the call text. We thank the authors and referees for their valuable contributions to this process.

The mentioned referees are: Ahmet Sezgin, Ahmet Tercan, Ali Cengizkan, Altuğ Kasalı, Antonella Contin, Aslıhan Şenel, Ayşe Yönder, Ayşe Zeynep Aydemir, Ayşegül Kuruç, Beyhan Karahan, Birge Yıldırım Okta, Burcu Kütükçüoğlu, Bülent Çınar, Catharina Gabrielsson, Celal Abdi Güzer, Cevdet Erek, Constantin-Victor Spiridonidis, Desantila Hysa, Dilek Yıldız Özkan, Duygu Tüntaş, Ekin Pınar, Elif Kendir Beraha, Emine Görgül, Erdem Ceylan, Erdem Erten, Eren Kürkçüoğlu, Esin Kömez Dağlıoğlu, F. Cana Bilsel, Fehmi Doğan, François Penz, Gül Kaçmaz, Gülnur Ballıca, Gülsüm Baydar, Güven Arif Sargın, Mustafa Haluk Zelef, Hümanur Bağlı, İmre Özbek Eren, Meltem Erdem Kaya, Mine Özkar, Nilay Özsavaş Uluçay, Nilgün Çolpan Erkan, Nizam Onur Sönmez, Oğuz Haşlakoğlu, Orkan Zeynel Güzelci, Özgür Bingöl, Özlem Olgaç Türker, Perry Kulper, Rıfat Gökhan Koçyiğit, Sait Ali Köknar, Semra Aydınlı, Senem Kaymaz, Seray Türkay Coşkun, Stavros Kousoulas, Zuhal Ulusoy.

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A new materialist cartography for converging architectural theory to practice

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Abstract
Architectural theory in the late 20th century, which often borrowed concepts and theoretical frameworks from other disciplines including post-structuralism and Marxist critical theory, faced criticism for failing to stimulate architectural practice and its eventual exhaustion. This theoretical crisis, coinciding with recent global crises, has led to a broader disciplinary impasse. In response, there is an urgent need for new perspectives to redefine architectural theory. This study introduces the new materialist perspective as a novel framework for understanding the complex fabric of reality, as a foundation to redirect architectural practice toward addressing real-world challenges. It proposes a conceptual cartography of architectural theories that critiques past issues in the theory-practice relationship and suggests solutions grounded in the new materialist perspective. This article adopts qualitative research, employing a cartographic strategy as its research methodology to present a cartography of architectural theory. It draws upon texts on architectural theory literature, new materialist philosophy and architectural texts that have been influenced by the new materialist perspective. The proposed cartography examines the adverse impacts of philosophical traditions on architectural theory and practice, while exploring potential frameworks derived from new materialism that emphasize transversality, socio-materiality, and non-representational approaches in architecture. Within this tripartite framework and cartography, conceptual trajectories are proposed to foster transversal disciplinary collaboration, situate practices in concrete conditions, and emphasize material realities. Ultimately, it aims to guide architectural practice in effectively addressing contemporary global challenges.

Keywords
New materialism, Non-representational theory, Socio-materiality, Theory-practice divergence in architecture, Transversality.

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1. Introduction

Given the extensive historical background in architectural literature, the persistent divergence between theory and practice remains a critical issue that warrants prioritisation, particularly in the current era of global crises. It is now more imperative than ever that architectural practice to be guided by a well-developed theoretical framework. Architectural theory has historically made significant use of critical and post-structuralist theoretical frameworks. However, while these borrowings are rich in philosophical and conceptual complexities, their influence on architectural practice has often been limited, as they have not effectively guided the application of architectural theory in many contexts. It is therefore evident that there is a requirement for the development of theoretical frameworks that facilitate the formation of more intrinsic and transversal disciplinary relationships in order to provide practical guidance to transform focus of practice in order to respond effectively to real-world challenges.

Influenced by post-structuralism, previous human-centred socio-cultural analyses in architectural theory, which view everything as a social construct, have been inadequate to grasp the complexity of material processes beyond human behaviour and culture. In contrast, the new materialism challenges the dualistic categories of nature-culture and matter-culture, offering a more comprehensive approach to addressing the systemic problems of our time. As Maria Voyatzaki proposes, the new materialist paradigm offers a superior understanding of environmental, demographic, geopolitical, and economic challenges by underscoring the indivisible link between environmental instability and socio-cultural formations (2018b, p. 5). Architectural theory can benefit from emphasizing real-world experiences, interactions, and non-representational material relationships, as highlighted by the new materialist approach, which has the potential to transform architectural practices and align them more closely with real-world problems.

This study considers the new materialist perspective, which offers a novel framework for understanding the complex fabric of reality that engages more effectively with daily and material life, as a fruitful school of thought that can provide a framework for integration of contemporary architectural practice and theory closer together. In this context, the hypothesis of this article posits that employing new materialist perspective as a theoretical background to transform the focus and approach of architectural practices can render architectural theory more applicable and practice-oriented. This study aims to explore the opportunities presented by the new materialist perspective, which offers a significant potential to broaden the focus of architectural practice by addressing real-world issues such as social and environmental challenges, while also tackling the historical difficulties in architectural theory that have contributed to the theory-practice divide. Accordingly, this study seeks to establish a cartography of architectural theory that presents conceptual trajectories, progressing from critiques of past challenges in the relationship between architectural theory and practice to proposing solutions based on the new materialist perspective. The ultimate objective is to introduce, discuss, and develop a philosophical framework that can inform future academic research and architectural practices, fostering a more integrated relationship between theory and practice within the architectural domain. To outline these conceptual trajectories, this study adopts qualitative research, employing a cartographic research strategy to facilitate navigation across various theoretical sources. These theoretical sources included literature related to the theory era and post-theory discourses in architecture, literature pertaining to the proposed new materialist perspective, emerging or existing new materialist effects in architectural theory and practical examples. The conceptual trajectories of this cartography have been organised into three subheadings: ‘From interdisciplinarity to transversality’, ‘from social culture to socio-material culture’, and ‘from representational to

non-representational and situated'. Examples illustrating at least one of these proposed subheadings have been analysed and interpreted, while the cartographies visualizing the conceptual trajectories of the research have been created and evaluated.

2. Literature

The distinction between theory and practice in the field of architecture can be traced back to the Renaissance period. During this time, architecture began to be understood as a product of the mind rather than a craft, and the idea of architecture was privileged over the physical reality of the building (Kaminer, 2007, p. 64). However, the period between the 1960s and the 2000s, often referred to as the 'theory turn' in architectural theory, witnessed a significant intensification of this dichotomy. This era witnessed a proliferation of theoretical concepts that were exchanged with other disciplines, including philosophy, linguistics, and sociology. Hays (1998) posits that this period was characterised by the ascendancy of Marxian critical theory and post-structuralism. Nonetheless, these theoretical frameworks were subjected to criticism for their restricted practical applicability (Sykes, 2010). From the latter half of the 1950s onwards, structuralist theories, informed by Saussurean structural linguistics, began to exert an influence on the social sciences and arts, leading to what has been termed the 'linguistic turn' (Loeckx & Heynen, 2020, p. 31). During this period, there was a notable increase in the number of intellectual approaches to architecture, influenced by linguistics. Similarly, with the development of post-structuralism, these approaches began to draw from post-structuralist literary theory. Consequently, a growing distinction emerged between theorists and practising architects, which led to the establishment of architectural theory as a full-time academic discipline (Heynen & Wright, 2012, pp. 41-42).

During the same period as post-structuralism, neo-Marxism provided a critical perspective on the field of architecture. However, at the beginning of the 21st century, seminal essays by Michael Speaks and Somol and Whiting challenged the functionality of critical theory, advocating for more adaptable frameworks for architecture (Baird, 2004). In the early 2000s, the efficacy of critical and linguistic theoretical approaches was called into question as a consequence of the advent of the new pragmatist perspective. This period in architectural history is frequently designated as 'post-critical' or 'post-theory'. The growing influence of the new pragmatism in the culture of architecture has been attributed to its practice-driven structure, which provides an action-based alternative to critical theory (Lefebvre, 2017). In the second half of the 1990s, the work environment of architecture was re-evaluated in the context of neoliberal economic theory, which resulted in the introduction of pragmatism into architectural theory. During this specific era of architectural theory and practice, the prioritization of tangible results and the integration of architectural procedures with capitalist principles resulted in a diminished emphasis on crucial social and environmental consequences.

This article puts forward a novel theoretical framework based on the adoption of new materialism, with the objective of overcoming the limitations that have previously been encountered in the application of theoretical approaches to architectural practice. The term 'neo-materialism', which is characterised by a distinct understanding of materiality, a novel perception of reality, and a unique ontological framework, was first introduced in the late 1990s by Manuel De Landa and Rosi Braidotti (Dolphijn & van der Tuin, 2019, p. 126-137). The tenets of new materialism emphasise the interconnectedness of material and discursive elements, adopting a relational ontology that considers them on the same ontological ground (Coole & Frost, 2010). Notable figures associated with new materialism include Karen Barad, Donna Haraway, Jane Bennett, Graham Harman, Bruno Latour, Timothy Morton, Quentin Meillassoux, Elizabeth Grosz, and many others (Coole & Frost, 2010; Dolphijn & van der Tuin, 2019; Kissmann & van Loon, 2019).

The new materialist school of thought is comprised of a number of distinct sub-currents, including vital materialism, agential realism, new materialist posthumanism, feminist new materialism, and non-representational theory. A criticism of dualism that advocates for an integrated comprehension of materiality, encompassing cultural, social and discursive elements (Barad, 2007; Bennett, 2010), is a unifying feature of all sub-currents. This idea is predicated on the notion that all causalities of existence are contingent upon the interdependence of social context and material conditions, which is also referred to as socio-materiality.

Nigel Thrift's 'non-representational theory', which falls under the umbrella of new materialism, offers a critique on the prioritisation of representations as the primary source of evidence for understanding existence. This theory proposes a shift in focus towards material interactions and lived experiences, as opposed to the emphasis on discourse that characterizes social constructivism (2008). Furthermore, Donna Haraway's concept of 'situated knowledge' (1988) is complementary to non-representational theory, emphasising the significance of context-specific knowledge and practices. Both approaches have the potential to provide insights that can inform the development of architectural practices in analysing and responding to the complexities of the planet.

The distinctive perspectives proffered by new materialism have begun to gain prominence in architectural literature since the 2010s. Architectural theory has been expanded to encompass discussions of interactions between humans, non-humans, materials, objects, and discourses (Yaneva, 2012; Adler, 2017). Goodbun and Jaschke (2012) posit that the perspective on matter espoused by new materialism can provide novel insights for the field of architecture.

The *New Materialisms* book series, edited by Iris van der Tuin and Rosi Braidotti and published by the University of Edinburgh, comprises eight volumes, two of which address architectural content. One such book is the 2017 edited volume by Andrej Radman and Heidi Sohn, entitled *Critical and Clinical Cartographies: Architecture, Robotics, Medicine, Philosophy*. The book departs from traditional architectural analysis by drawing on theoretical and philosophical traditions associated with architecture as a material practice, including but not limited to the fields of robotics, medicine, and philosophy. The book entitled *Architectural Materialisms: Nonhuman Creativity*, edited by Maria Voyatzaki (2018a), assembles a collection of essays that explore the emerging field of architectural materialisms from the vantage point of new materialist thought. These works emphasise the significance of material processes in architectural discourse, as well as the influence of contemporary materialist ideas on theoretical and practical approaches. From this perspective, there is considerable potential for bridging the gap between theory and practice by reorienting the architectural focus from discursive dimensions to materiality. By mapping conceptual trajectories from criticisms of this theory-practice gap to the possibilities offered by new materialism, this paper investigates this equilibrium. In this context, a cartography structured around three main conceptual trajectories has been provided. The first conceptual trajectory, 'from interdisciplinarity to transversality', critically examines architectural theory's previous entanglement with linguistics and semiotics in the social sciences. At this point, new materialist approaches, which focus on concrete material processes, indicate a theoretical redirection by fostering intersections between the social sciences, natural sciences, and positive sciences. The second theoretical trajectory, 'from social culture to socio-material culture', evaluates the problematic structure of architectural theory's historically anthropocentric engagement with social culture in informing practice. This section maps a conceptual trajectory that explores the potential of new materialism's intertwined understanding of social and material realities. The third theoretical trajectory, 'from representational to non-representational and situated', critiques the representational qualities of previous architectural theory,

which distanced theory from practice by remaining disconnected from reality. It then considers the potential of non-representational theoretical approaches in new materialism to bring architectural theory closer to addressing real-world issues.

3. Method

This study adopts qualitative research, employing a cartographic research strategy to present a cartography of architectural theory. Braidotti defines cartography as a theoretically grounded engagement with the present, establishing a subject position that prioritises a perspective beyond theoretical considerations (2013, p. 164). In alignment with Braidotti's definition of cartography, this study adopts a critical subject position informed by readings of the history of architectural theory. From this foundation, it draws conceptual cartographies that navigates from critiques of historical challenges to architectural theory toward the opportunities offered by the new materialist perspective. The value of this study lies in its comprehensive and multi-faceted analysis, facilitated by the utilisation of the cartographic research strategy, which enables the establishment of interconnections between diverse fields of knowledge. These fields include philosophical traditions and their impacts on architectural theory, the history of architectural theory and criticism, the philosophy of new materialism, and architectural texts influenced by new materialist thought. The cartography of architectural theory developed in this study is constructed through the mapping of connections between the categories and subcategories identified during the analysis of these fields. As previously mentioned, the study specifically presents a new materialist cartography composed of three subcategories proposed as a theoretical framework for architectural practice. At a broader scale, these three subcategories are integrated into a cartography that encompasses five fundamental categories; the 'philosophical traditions' that significantly influenced the theory-practice divide emerging in the second half of the 20th century; the 'general influences of philosophical traditions'; the 'effects on architectural theory and practice'; the 'potential frameworks from new materialism'; and the 'practical examples'. These categories have been jointly interpreted within this framework, culminating in assessments, recommendations, and discussions. The most recent example of the application of cartographic strategies in the field of architectural studies is the essay *Alive again: A cartography for 'post-theory' in architecture* (2022) by Furkan Balcı and Funda Uz (Balcı & Uz, 2022). However, the scope of this study differs, as Balcı and Uz (2022, p. 163) examine the intricate interrelationships between the vitality discourse of post-theory and traditional architectural theories.

4. Cartographic trajectories through a new materialist approach to converge architectural theory and practice

This section presents cartographies constructed to delineate a theoretical framework for architectural practice through the perspectives of new materialism. As previously stated, the creation of these cartographies involved the identification of three key subheadings: 'From interdisciplinarity to transversality', 'from social culture to socio-material culture' and 'from representational to non-representational and situated'. These subheadings were derived from historical challenges in architectural theory, new materialist viewpoints with the potential to elicit positive responses within architectural theory, and emerging or existing new materialist effects in architectural theory. The fourth subheading involves the analysis and interpretation of architectural projects that reflect the recommendations derived from the preceding three subheadings, thereby facilitating a deeper understanding of their applicability to architectural practice. The fifth subheading provides an evaluation of the cartographies through the use of visual representations.

4.1. From interdisciplinarity to transversality

As a result of theoretical discourse prioritizing conceptual abstraction over the practical application of architectural theory, the significance of architectural theory has been confined to the exclusive domain of academic discourse, limiting its interaction with broader architectural practice and general public. This section presents a cartographic framing of a conceptual trajectory that begins with a critique of the predominant interdisciplinary interactions of architectural theory with the social sciences and progresses towards the adoption of transversal disciplinary intersections in architectural practices, aligned with the principles of new materialism. The transversal approach, with its capacity to intersect and integrate multiple disciplines to comprehend the multifaceted dimensions of reality, offers a perspective that brings architectural practices closer to addressing real-world issues.

In the latter half of the twentieth century, architectural theorists began to incorporate concepts from a variety of fields, including philosophy, linguistics, sociology, phenomenology, and anthropology (Hays, 1998; Sykes, 2010, p. 14). This engagement that architecture has predominantly established with the social sciences has enhanced its intellectual depth but has also introduced significant challenges. The attempt to incorporate concepts from other fields has led to a notable increase in abstraction and conceptual complexity within architectural theory. One noteworthy influence was the integration of Derrida's post-structuralist tenets into architectural theory through 1980s deconstructivism, as exemplified by Eisenman, challenged conventional notions of meaning and form in architecture, emphasizing their inherent instability and ambiguity. Pauline Lefebvre (2017, p. 24) challenges the reliance on linguistic analogies, noting that a significant number of architects have reduced complex philosophical concepts to mere superficial formal exercises, thereby stripping them of their inherent political and cultural significance. Similarly, Speaks (2002) and van Toorn (2017) highlight the disconnection between theoretical frameworks of architecture and real-life architectural practice.

In the light of aforementioned points, it can be posited that one of the principal challenges encountered in the integration of architectural theory into practical projects during the second half of the twentieth century was the influence of social constructivism, structuralism and post-structuralism, which gave rise to an increased tendency towards abstraction and literal interpretation within theoretical discourse. The perspective promoted by these philosophical traditions, which posits that all phenomena are social constructs, strengthened the connection between architecture and the humanities. Alejandro Zaero-Polo criticises the perspective of architecture as a 'social construct' and its predominant focus on the social sciences (2008). The epistemology of the social sciences is characterised by abstraction and a lack of physicality. It is therefore necessary to adopt a more practice-oriented focus in architectural theory, addressing real-world challenges while retaining the discursive insights cultivated through engagement with the social sciences. In order to reclaim its transformative potential, it is essential that a balance is struck in architectural theory between intellectual depth and practical utility. This will facilitate a dialogue that bridges theoretical frameworks with real-world applications. Moreover, the agenda of architectural theory should be expanded to encompass engagement with real-world problems intersecting with fields such as the life sciences and the positive sciences.

The creation of frameworks that transcend the dichotomy between theory and practice is a key objective of new materialist theorist Rosi Braidotti's concept of 'post-disciplinarity'. This approach entails moving beyond the conventional academic boundaries to construct integrative frameworks between different scientific and professional fields that emphasize interconnectivity and the necessity to transcend dualistic distinctions, such as the separation between the humanities and the sciences (Braidotti, 2021). This

approach fosters new forms of collaboration across various fields within the humanities and the sciences to address complex challenges such as climate change and social inequalities. Pelin Tan's text, entitled *Transversal Materialism: On Method, Artifact and Exception*, provides a complementary perspective by focusing on the interconnectedness of disparate fields through material practices. Tan posits an approach that transcends the boundaries of traditional disciplinary knowledge, thereby facilitating a nuanced understanding of the connections between tangible realities and social dimensions in architectural practices. This perspective highlights the necessity for practices that engage with multiple disciplines in a transdisciplinary manner, examining the material and social dimensions of spatial practices from a spatial perspective. Furthermore, it encourages the implementation of applications that recognise the value of both human and non-human actors (2016). A transversal disciplinary approach interlinks the methodologies and epistemologies of various disciplines, thereby enabling a deeper comprehension of the complex structure of reality and systemic challenges. This approach calls for the integration of tangible realities from the site into the design process, rather than relying on abstract assumptions, in order to more effectively address the challenges faced by communities and ecosystems. The application of this perspective in architectural practices entails not only a comprehensive examination of the social contexts of architectural projects but also an exhaustive analysis of their material realities. In this context, it is proposed that architectural practice should be guided by beginning with the tangible conditions of the project site and its surroundings, integrating all related fields of knowledge and practice into the architectural process. It is recommended that theoretical and practical studies be conducted with a transversal disciplinary approach to identify potential intersections between architectural practices and disciplines such as the humanities, the positive sciences, and the natural sciences.

4.2. From social culture to socio-material culture

This section presents a cartography that frames a conceptual trajectory, commencing with a critique of the dominance of social culture in architectural theory and progressing towards the adoption of a socio-material perspective in line with the tenets of new materialism. In the latter half of the twentieth century, architectural theory underwent a significant shift in focus, with an increased emphasis placed on the interrelationship between social and cultural factors and the built environment. This shift was markedly influenced by the developments in critical theory, semiotics, structuralism and post structuralism. Post-structuralism and its precursor, structuralism, forms semiotic base for architectural theory, where phenomena are treated as signs reflecting prevailing ideologies via linguistic analysis. Jonathan Culler suggests that employing linguistics in the analysis of cultural phenomena is predicated on the recognition that social and cultural phenomena are not merely physical occurrences but are imbued with meaning and thus function as signs (1976, p. 4). It is evident that there was an analogy between critical theory in architecture and semiotics, in that both seek to understand the underlying power structures that inform the formation of the built environment. Furthermore, the year 1968 marked a pivotal moment in architectural history, where the critical potential of the discipline came to the fore, superseding its aesthetic dimensions (Loosen et al., p. 9). The contributions of prominent figures such as the Marxist critical theorist Tafuri (1976) serve as pivotal examples of architectural criticism that perceive architecture as an integral component of the economic and cultural superstructure. In the consequence of these influences, architectural theory has undergone a shift in focus, with an increase emphasis on the analysis and critique of human-centred social culture. This pivotal shift in architectural theory has prompted a re-evaluation of architecture through a socio-cultural

lens, often overshadowing the material and tangible aspects.

In contemporary architectural theory and practice, anthropocentric perspectives remain dominant, with a considerable focus on societal issues pertinent to human culture. A significant proportion of academic and practical efforts in architecture concentrate on urban areas as the foundation of human culture, frequently neglecting to address the global-scale impacts of architecture on other living beings and the planet in a more holistic manner. In the field of architecture, academic and practical efforts addressing issues of ecology, resource use, and energy efficiency remain insufficient. In contrast, new materialist philosophy provides a theoretical framework that establishes a more balanced approach between human societies and material dimensions. Voyatzaki (2018c, pp. 294-295) posits that post-humanist perspectives challenge this anthropocentric orientation, paving the way for assessments that encompass both human and non-human entities. The new materialist approach, which considers all entities in the universe as equal and mutually interconnected within a flat ontology and regards the social and material dimensions as intertwined rather than categorically separate, is posited to have a beneficial impact on architectural practices.

In the new materialist paradigm, it is acknowledged that reality is shaped by both social constructions and material processes, with non-human entities exhibiting agency and vitality (Barad, 2007; Bennett, 2010). The integration of materiality as a theoretical framework within architectural practice provides a lens through which architectural practice can be brought closer to the complexities of reality. This approach encourages a more profound comprehension of the interrelationships between social and material components within the field of architecture.

As an emerging influence of the new materialist paradigm, material studies are gaining importance in architectural practice and research, signifying a shift towards understanding the broader implications of materials and their interactions with the world. Gerald Adler characterizes this phenomenon as the centralization of materiality and material conditions in architectural discourse (2017). This focus on materiality has facilitated intersections between architecture, sociology, and anthropology, emphasizing the need to investigate materials, technologies, budgets, and tools (Yaneva, 2012). The growing emphasis on materiality within scientific culture and architectural theory positions theory as a socio-material construct, aligning it more closely with the complexities of reality. It is crucial to recognise the interconnectedness of human and non-human actors and to acknowledge the agency of non-human elements in architectural practices that adopt such a theoretical framework.

The new materialist approach has the potential to affect a positive shift in the focus of architectural practices, guiding the development of designs that consider not only the needs of human communities but also the needs and experiences of non-human actors. In light of this framework, it is proposed that holistic investigations be conducted into the environmental, social, and economic interactions of all entities, from a grain of sand on the ground to building materials, from water sources to atmospheric factors, and from social rituals to animal behaviours and needs. These investigations would facilitate a better understanding of the potential impacts of architectural practices and expand their ontological scope. The socio-material framework of new materialism facilitates the generation of practical insights to guide the development of sensitive and inclusive architectural practices. The advancement of this approach as a guiding framework for architectural practices is proposed to expand the scope of responsibility in architecture, integrating human culture and material dynamics in a more comprehensive manner.

4.3. From representational to non-representational and situated

Architectural theory shaped by meaning-focused linguistic approaches is critiqued in this section for its representational nature and its detachment from the actual

knowledge of place. Building on this critique, it is proposed that adopting non-representational and situated theoretical frameworks, which place greater emphasis on the reality of place, can facilitate a departure from representations and abstractions in architectural practice. Accordingly, a conceptual cartographic trajectory has been developed around these ideas.

As previously mentioned, the influence of structuralism during the 1960s and 1970s became prominent in architectural discourse, enriching theoretical discussions but resulting in an undue emphasis on uncovering symbolic meanings and representations, while the practical and material complexities of architecture received insufficient attention (Loeckx & Heynen, 2020). Nevertheless, despite the advancement of theoretical discourse that these perspectives have facilitated, they have not succeeded in bridging the gap between theory and practice. Notable works such as Aldo Rossi's *The Architecture of the City* (1984) and Venturi, Scott Brown, and Izenour's *Learning From Las Vegas* (1977) exemplify a focus on symbols and representation within semiotics, thereby underscoring its limited engagement with the material and practical intricacies of architectural design.

Meaning-focused linguistic approaches, which rely primarily on linguistic representation, are unsuitable for architecture because the field is fundamentally rooted in concrete and experiential elements. In the field of architectural theory, shaped by meaning-focused linguistic approaches, the distinction between theoretical discourse and practical application has become increasingly pronounced, prompting criticism also from post-critical theorists. Theories within the textual and representational paradigm pose significant challenges for integration into practice, largely due to their reliance on post-structuralist philosophical references and abstract conceptual structures. Amir Djalali posits that, in contrast to language, architecture organises bodies and creates order through activities, sensations, and affects rather than dividing subjects and objects (2017, p. 1296). Similarly, Christopher Wood criticises the linguistic analogies employed by theorists such as Eisenman, arguing that they are inherently incompatible with the field of architecture, which is more closely aligned with real-time experiences, dynamics, and empathic interactions (2002).

One of the proposed cartographic trajectories is based on Nigel Thrift's (2008) 'non-representational theory', which circumvents the linguistic constraints of post-structuralism. Phillip Vannini describes non-representational theory as a successor to postmodern theory and a significant shift away from cognition, symbolic meaning, and textuality (2015, p. 2). This evolving research paradigm underscores the ever-shifting and dynamic nature of life while directing theoretical focus towards lived experiences, rather than representations. Similarly, the concept of 'situated knowledge', as developed by Donna Haraway, posits that, in contrast to cultural theories that treat the planet as an externality, knowledge production should be non-generalising, subjective and partial. Furthermore, it suggests that the world should be observed from an intimate and situated perspective (1988). Haraway's approach supports contextualism in architecture, advancing it in a direction that emphasizes real-time, subjective perspectives that are intimate, situated, and immanent.

There are alternative textual essays by theorists that address the representational constraints that reduce the permeability between architectural theory and practice. To illustrate, Jane Rendell's site-writing method challenges the conventional paradigms of representation in architecture, prompting a situated exploration of the material, political, ideological and sensory aspects of locations, and rethinking our relationship to place (2020). This method bridges the gap between theory and practice by generating site-specific, real-world knowledge through a material and discursive perspective aligned with new materialist views on situated knowledge.

In her book, *Kissing Architecture*, Sylvia Lavin also puts forth the proposition of a shift away from verbal dis-

course on the social and physical aspects of buildings towards an emphasis on the affective experience through physical means. Lavin argues that "no one can speak when kissing", suggesting that a focus on sensory interaction rather than verbal description and representation is more appropriate for architectural discourse and theory (2011, p. 14). The question of representation is also addressed by anthropological approaches through an examination of the axes of subjectivity, objectivity, and situatedness. For instance, Albena Yaneva advocates for situated theoretical assessments, which can be achieved by critically addressing and overcoming the subject-object dichotomy, the privileged position of the subject, the inefficient representation of reality in human consciousness (2012).

In the light of the aforementioned considerations, it becomes evident that architectural theorists have devised novel textual and practical methodologies in response to the constraints imposed by representational theories. These approaches are designed to more effectively encapsulate the intricate nuances of architectural reality, emphasising its tangible, experiential, and material dimensions. For instance, some approaches engage intensively with particular sites, prioritising sensory and affective experiences over verbal representations, while others emphasize the material-discursive potential of theory. These examples demonstrate the importance of shifting the focus of architectural theory from conceptual, abstract, and symbolic representations to expressions that are situated, immanent and directly engaged with real-world issues. The advancement of non-representational and situated methodologies is pivotal for attaining an immanent and profound comprehension of particular sites. It is therefore recommended that design decisions be informed by a multifaceted analysis of specific sites, encompassing a multitude of dimensions, including social, material, sensory, and political aspects. To achieve this, it is essential to incorporate situated analyses, community engagement, local narratives, and situated cultural, natural and ecological references into the design process.

4.4 Assessment of practical examples

In this subheading, examples that are considered to reflect at least one of the tripartite conceptual trajectories outlined in the previous three subheadings are examined and interpreted. These examples include the 'Floating University Berlin', 'Northerly Island', the 'As Close as We Get' project, and 'Superkilen'. Additionally, the general approach of the 'ROTOR' bureau, rather than focusing on a specific project, is highlighted as an example for its alignment with two aspects of the new materialist tripartite framework.

The Floating University Berlin is a project by the architectural collective Raumlabor, which repurposed an area originally constructed in the 1930s as a rainwater retention basin for Tempelhof Airport into a "nature-culture learning site" in 2018 (Talevi & Karjevsky, 2024). This redesign is consistent with the tenets of new materialist thought, which rejects the conventional dualism between nature and culture and instead espouses their intrinsic interdependence. Raumlabor adopted Haraway's concept of "natureculture" (Talevi & Karjevsky, 2024) and implemented modest spatial interventions with the objective of preserving natural elements to the greatest extent possible. The project facilitates interactions between human communities and natural elements through the implementation of biennial Climate Care festivals and nature-themed workshops hosted in this space. The project is not merely a design for human use; it also serves as an experimental and experiential space for exploring the coexistence and interaction of human communities, built environment elements, natural features, and non-human life forms. By adopting this approach, the project embraces a socio-material perspective that values both human needs and non-human material entities, rather than prioritising anthropocentric requirements alone.

Similarly, the Northerly Island project by Studio Gang embodies a socio-material balance. Designed for Chicago's lakefront, the project focuses on habitat restoration, including the creation of a lagoon with a reef to

support fish spawning and calm wave activity. Landscapes and topographies were designed to encourage wildlife habitation (*Northerly Island*, n.d.). By allowing nature to restore itself, the project demonstrates a departure from human-centred designs, challenging dichotomies such as nature-culture and subject-object. It evaluates all material entities—whether living or non-living—within a flat ontology framework. By incorporating architectural and urban elements such as amphitheatres and walking and cycling paths, the project enables people to experience this natural space within the city, reinforcing the integration of human culture with nature.

The As Close as We Get project (2022) by SUPERFLEX, in collaboration with DTU Sustain and By & Havn, similarly reflects a socio-material perspective. The project aims to mitigate the negative impact of the declining Danish rock reefs on marine ecosystems and to preserve and enhance marine biodiversity. Special concrete types were developed and tested to create suitable environments for algae and marine animals when placed in Copenhagen Harbor (*As Close As We Get*, n.d.). The goal is to use this concrete in structural components such as bridge and pier foundations, thereby addressing not only human needs but also those of other life forms. The project challenges dualities such as human-non-human and nature-culture while reflecting a transversal materialist approach through collaboration with marine biologists and engineers, aligning with two dimensions of the tripartite framework proposed in this study.

The Superkilen project, designed by BIG (Bjarke Ingels Group), SUPERFLEX, and TOPOTEK 1 in 2009 and completed in 2012, is a public space located in Copenhagen's Nørrebro district. The project aims to foster a sense of belonging among diverse ethnic groups by integrating objects from 60 different countries (*Superkilen*, 2012). These objects exemplify how the material world influences social and cultural relationships, highlighting the embedded and non-representational qualities of new materialist thought, which transcends social structures, linguistic mediation, and representation. By emphasizing the cultural attributes of material objects related to religion, language, and ethnicity, the project creates an intercultural space for socialization and interaction that transcends these distinctions. In doing so, it embodies an awareness of socio-material culture, showcasing how material objects are integrated into social life.

ROTOR is a multidisciplinary bureau specializing in the research, consultancy, and implementation of reused construction materials. The team assesses the reuse potential of materials before building demolitions, performs material extraction processes, and subjects these materials to physical and chemical treatments to make them reusable. These materials are then offered for sale at discounted prices, accompanied by consultancy services on their integration into design projects (*About us*, n.d.). Consequently, the ROTOR team comprises not only architects but also experts from diverse fields such as environmental science, chemistry, materials science, and biology. By adopting a transversal materialist approach, ROTOR addresses complex issues like resource scarcity through interdisciplinary collaboration, ultimately enhancing resource efficiency. Moreover, ROTOR's reimagining of the built environment not merely as a component of human culture but as a repository of reusable materials reflects a socio-material perspective that respects and emphasizes sustainability.

4.5 Assessments of the new materialist cartography developed for converging architectural theory to practice

This section of the study examines the conceptual trajectories derived from the issues analysed under the tripartite framework in the previous section. The conceptual cartography is constructed through the visualisation of these trajectories in diagrams, and evaluations are conducted based on this cartography. In delineating the conceptual trajectories, the study employs four fundamental categories: The "philosophical traditions" that influenced the theory-practice divide

that emerged prominently in the second half of the 20th century; the "general influences of philosophical traditions"; the "effects on architectural theory and practice"; and the "potential frameworks from new materialism" that can positively redirect the focus of architectural practice. The interconnections between the subcategories that emerged from the primary categories form the basis of the conceptual trajectories that underpin the cartography. Initially, the categories were analysed both individually to reveal shared themes and in pairs to explore their interconnections, resulting in the presentation of a comprehensive schematic cartography that incorporates all categories.

The analysis examining the connections between "philosophical traditions" and the "general influences of philosophical traditions" reveals that impacts such as "increased abstraction and conceptual complexity", "reliance on linguistic interpretation", and "emphasis on textuality and symbolic meanings" are associated with the influences of "structuralism", "poststructuralism", and "semiotics". Similarly, the impacts such as "reduced focus on material reality", "reality regarded as a social construct", and "growing divide between the humanities and sciences" stem from the influences of "structuralism", "poststructuralism", "social constructivism" and "critical theory" (Figure 1).

The impacts of these philosophical traditions on architectural theory and practice are polarized into three distinct categories: the prevalence of "interdisciplinary" interactions, the dominance of "social culture", and the reinforcement of "representational" tendencies (Figure 2). In architecture, the predominance of interdisciplinary connections influenced primarily by social sciences has exacerbated abstraction and conceptual complexity. The categories of interdisciplinarity and social culture together have given rise to issues such as "philosophical concepts reduced to linguistic analogies" and "philosophical concepts constrained to superficial formal exercises". Additionally, the centrality of social culture in architectural theory has caused architectural projects to focus disproportionately on "prioritization of social data over material data", "insufficient attention to non-human elements", and "human needs prioritized over material reality". The dominant

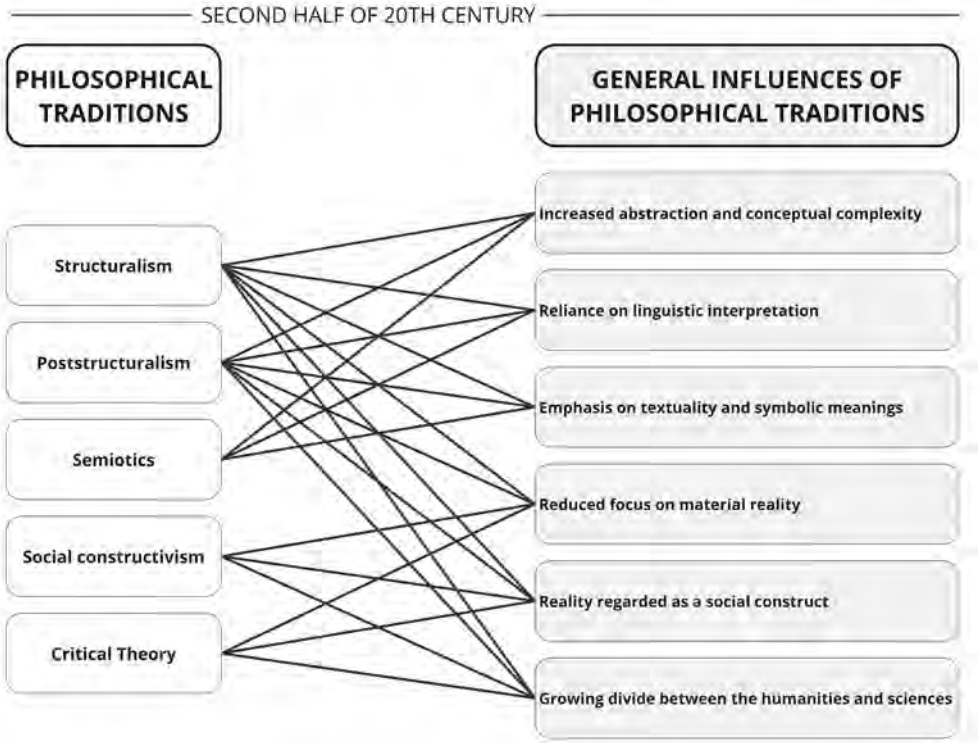

Figure 1. *The "philosophical traditions" and the "general influences of philosophical traditions" categories (Created by the authors, 2024).*

philosophical traditions, characterized by extensive linguistic and semiotic references, have led to the proliferation of indirect and representational approaches in architecture, resulting in the subcategory of "mediates architectural theory's engagement with reality primarily through representation". At the intersection of increased interdisciplinarity, socio-cultural dominance, and representational tendencies, key subcategories emerge, such as "weakened connection between architectural theory and material reality" and "reduced connection between architectural projects and real-world problems".

The conceptual frameworks offered by new materialism provide potential responses to the aforementioned issues, polarized under three categories, as illustrated in the diagram below (Figure 3). Within the "transversality" category, subcategories include "linking methodologies and epistemologies across disciplines", "integrating diverse forms of knowledge into architecture", and "connecting architecture with other scientific and academic fields". The "socio-material culture" category has the potential to generate positive impacts such as the "recognition of the agency of non-human entities", "supporting designs that address the needs of both human and non-human actors", "advancing inclusive and responsive architectural practices", and "aligning architectural theory with complex realities through materiali-

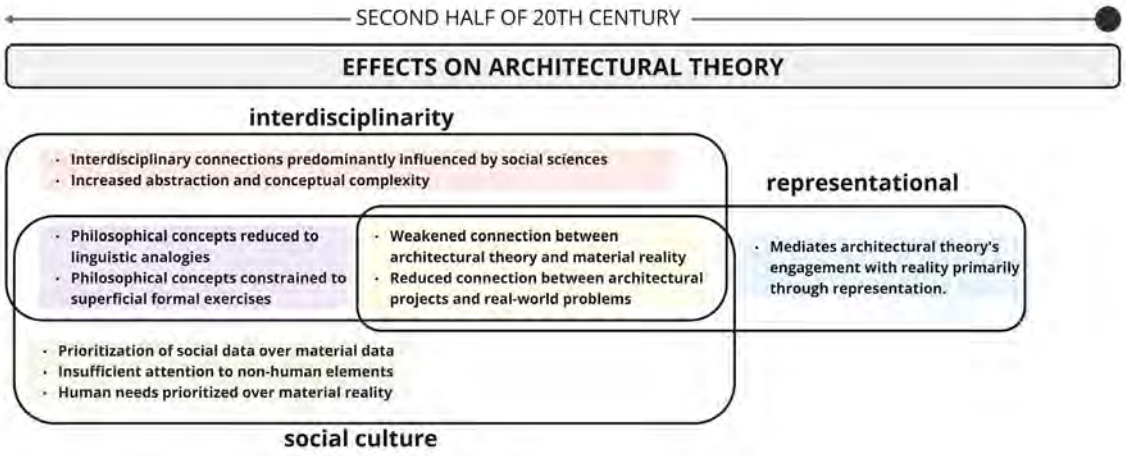

Figure 2. *The "effects on architectural theory" category (Created by the authors, 2024).*

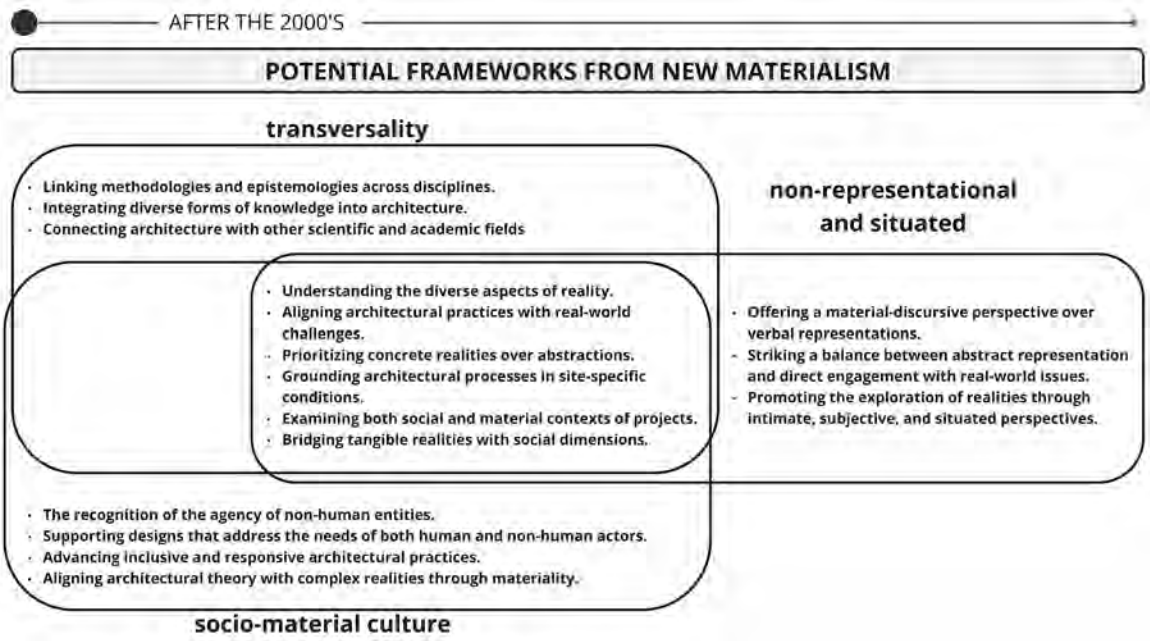

Figure 3. *The "potential frameworks from new materialism" category (Created by the authors, 2024).*

ty". The new materialist framework of "non-representational and situated" perspectives offer potential conceptual trajectories in architecture, including "offering a material-discursive perspective over verbal representations", "striking a balance between abstract representation and direct engagement with real-world issues", and "promoting the exploration of realities through intimate, subjective, and situated perspectives". At the intersection of these three categories, shared subcategories emerge, such as "understanding the diverse aspects of reality", "aligning architectural practices with real-world challenges", "prioritizing concrete realities over abstractions", "grounding architectural processes in site-specific conditions", "examining both social and material contexts of projects", and "bridging tangible realities with social dimensions".

The "effects on architectural theory" category, which outlines the negative impacts of philosophical traditions on architecture, is juxtaposed with the "potential frameworks from new materialism" category, which emphasizes approaches redirecting architectural practice toward concrete, material, and situated real-time issues (Figure 4). This comparison makes the limitations of previous philosophical traditions evident, while new materialist frameworks are proposed as a viable response. Between these two categories, diverse conceptual trajectories emerge, highlighting intellectual pathways with the potential to bridge theoretical shortcomings and practical advancements. For each issue listed under the

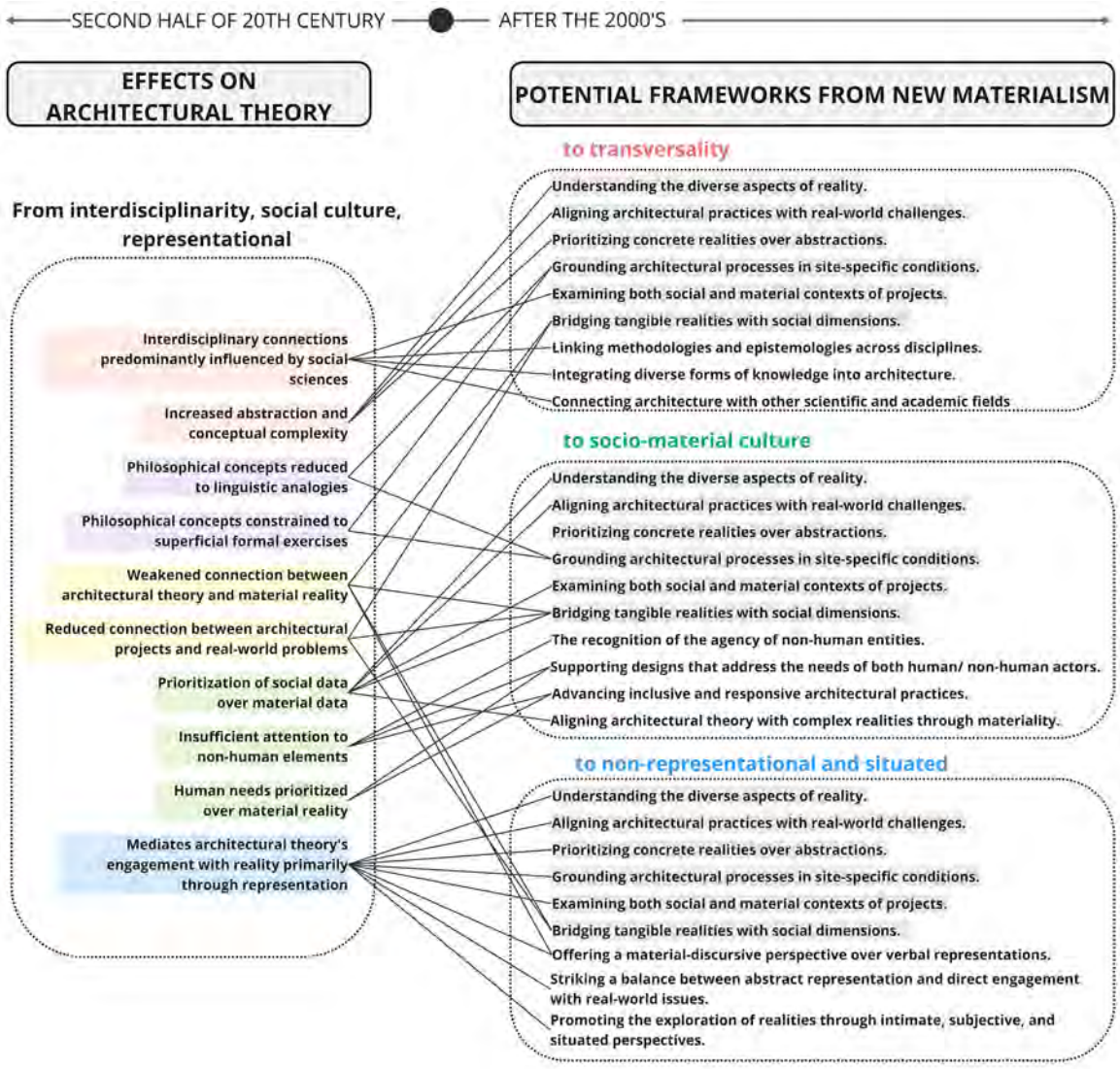

Figure 4. *Juxtaposition of the "effects on architectural theory" category with the "potential frameworks from new materialism" category (Created by the authors, 2024).*

former, responses are identified within various subcategories under the latter, resulting in a cartography encompassing multiple conceptual trajectories. This dual diagram, which constitutes the foundation of the tripartite conceptual framework in the study, represents the unique section of the research where the shortcomings of architectural theory are addressed, and conceptual trajectories from new materialism are proposed as responses. For instance, under the themes of "interdisciplinarity" and "social culture", the issue of "philosophical concepts reduced to linguistic analogies" is addressed by the shared emphasis on "grounding architectural processes in site-specific conditions" within the categories of "transversality" and "socio-material culture". Similarly, within the "representational" category, the issue of "architectural theory's engagement with reality primarily through representation" is resolved through the propositions listed under to "non-representational and situated", offering advancements toward a more directly engaged architectural theory. Another example appears under the "socio-culture" category in architectural theory, where the issue of "human needs prioritized over material reality" is countered by new materialism's emphasis on promoting "socio-material culture". This includes propositions such as "supporting designs that address the needs of both human and non-human actors" and "advancing inclusive and responsive architectural practices". These examples collectively underscore the transformative potential of new materialist approaches in fostering a balanced perspective within architectural theory and practice.

When the headings "philosophical traditions", "general influences of philosophical traditions", "effects on architectural theory and practice", and "potential frameworks from new materialism" are combined with the heading of "examples of practice", the comprehensive conceptual cartography of this study emerges (Figure 5). This cartography is significant because it moves beyond a one-dimensional focus on identifying shortcomings in architectural theory and proposing responses. Instead, it adopts a holistic approach by incorporating the underlying philosophical traditions and their broader impacts, which contribute to the existing issues in architectural theory. Additionally, practical examples aligned with the principles of the new materialist philosophical tradition are integrated into the cartography, enriching the study with both theoretical depth and practical applications.

5. Conclusion and discussion

In today's era of crises, the need for theoretical frameworks that reinforce the responsibility of architectural practice in addressing real-world problems is evident. This study contributes to this discourse by examining the potential of the new materialist perspective, which holds promise for providing practical guidance to transform the focus

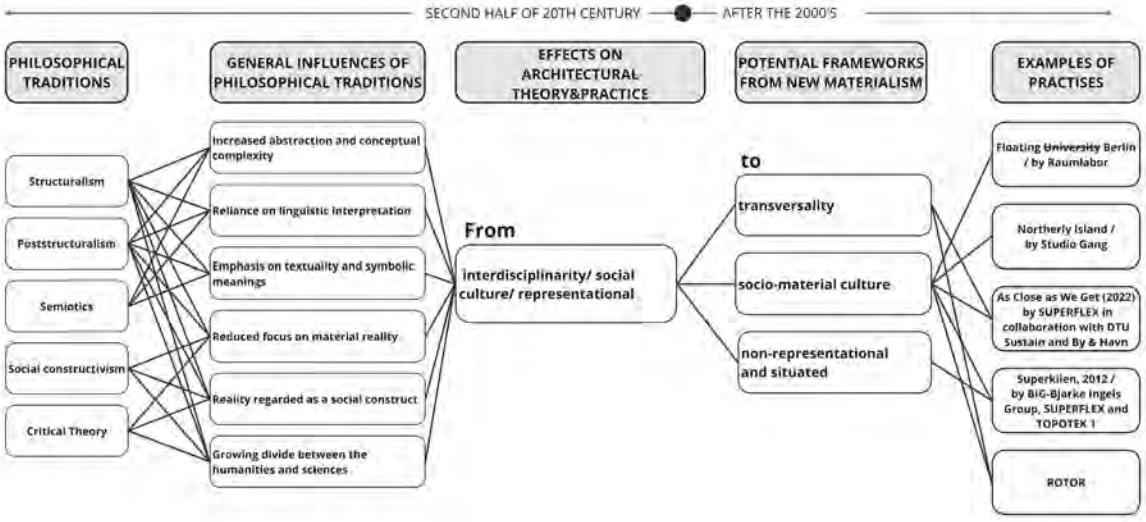

Figure 5. *New materialist cartography for converging architectural theory to practice (Created by the authors, 2024).*

of architectural practice. Tripartite conceptual trajectories were developed, comprising the headings 'from interdisciplinarity to transversality', 'from social culture to socio-material culture', and 'from representational to non-representational and situated'. This framework was supported by the creation of a conceptual cartography. Within this tripartite framework and cartography, conceptual trajectories were proposed that encourage intersectional collaborations, grounding in concrete conditions, and a focus on material realities. These trajectories aim to guide architectural practice toward a perspective that addresses real-time, complex, and systemic challenges.

Future research is recommended to evaluate the insights and proposals presented in this study through practical applications based on the tripartite framework. Considering that the discussion of new materialism within architectural theory is still in its nascent stage, it is difficult to identify substantial opposing views. However, the new materialist paradigm has been subject to criticism. Flatschart argues that the paradigm's foundation on flat ontology, which assumes all entities possess equal ontological status, makes critical discourse challenging by complicating the analysis of distinctions and differences (2021). This lack of critical analysis in architecture could potentially weaken resistance to economic or political domination targeting the discipline of architecture. Furthermore, the emphasis on subjectivity within new materialist tenets may risk privileging individual interests over collective benefits. While this research does not delve deeply into these critiques, it is essential for future studies to rigorously investigate these perspectives.

The cartographies and frameworks established in this study are open to further development and refinement if required. Additional new materialist frameworks and conceptual trajectories could be incorporated into the tripartite framework proposed in this study. Increasing both the quantity and visibility of studies that explore the growing academic alignment between new materialism and architecture in academic and professional environments is therefore of great importance.

The cartography developed in this study serves as a draft that facilitates the evaluation of the philosophical traditions that have shaped the theory-practice divide in architecture, their broader impacts, their consequences on architecture, potential philosophical frameworks emerging from new philosophical approaches, and practical examples (Figure 6). This cartography enables the formation of diverse conceptual trajectories through interconnections between subcategories, offering various proposals to address the shortcomings of architectural theory.

This cartographic draft allows for new readings that investigate the potential of different philosophical traditions in addressing the shortcomings of architectural theory across various periods. Due to the scope of this article, the focus has been limited to the period starting from the second half of the 20th century, where the theory-practice divide became particularly pronounced. It is recommended that future research use this cartographic draft to conduct studies covering different time periods. Moreover, while this study has explored the potential

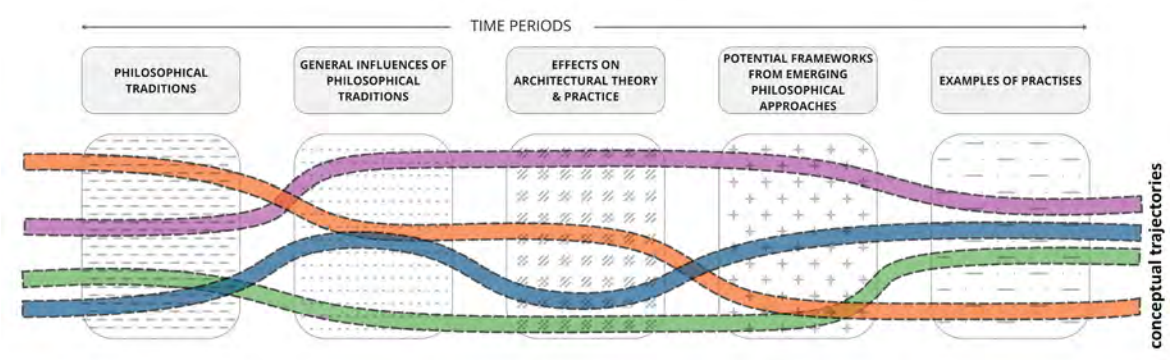

Figure 6. *A cartographic base for converging architectural theory to practice (Created by the authors, 2024).*

of the new materialist perspective, this cartography could be employed to generate new insights through the lens of other philosophical approaches. Given the professional responsibilities required by today's crisis environment, there is a pressing need for increased academic research exploring new theoretical perspectives that can guide architectural practices toward addressing real-world problems.

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Architecture as an open field of interactions: Climatic singularities in the work of Philippe Rahm

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Abstract
This paper proposes viewing scale as a mediating surface that bridges micro-subatomic dimensions and planetary scales, stimulating creative architectural thinking through transitions across these domains. By redefining scale as both an operation of thought and a navigable plane, the research explores its potential to inspire alternative approaches to architectural design. Drawing from thermodynamic principles and viewing the world as an interconnected whole, the study advocates for architectural practices that transcend traditional boundaries, fostering inter-scale jumps and connections. Using the concept of verticality, the paper emphasizes the continuity of design processes to address yet-to-emerge effects, encompassing multiple temporalities and speeds simultaneously. Verticality positions architecture as an interface sensitive to overlapping cycles and dynamics across disciplines and scales, suggesting that the significance of design lies not in its scale but in its capacity to engage with heterogeneous flows and intelligences operating at varying speeds. This perspective reframes spatial construction practices by integrating non-cartographic scales and micro-subatomic configurations, influencing contemporary architectural practices. The works of Philippe Rahm serve as a case study to examine these ideas. Rahm's architecture, rooted in micro-scale considerations and thermodynamic principles, provides a framework for exploring scalar jumps. By re-reading his projects through defined analytical frames, the study reveals the limitations of theory in bridging discourse and practice while highlighting practice as a mode of research. This theoretical and practical exploration seeks to uncover innovative methods of architectural thinking and making, fostering a transdisciplinary architecture that reconstructs new contiguities and expands boundaries of architecture.

Keywords
Architectural design, Interscalar, Micro-macro, Scale, Verticality.

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1. Introduction

> *"Everything is a matter of relationships between different scales: "Individuation occurs because there is a change between the microphysical and macrophysical dimensions" (Simondon, The Individual and Its Physico-Biological Genesis, 1995).*

In the 1960s, the modernist belief in the complete knowability of the world began to give way to perspectives that embraced complexity, inconsistency, and uncertainty. Emerging theories proposed "rethinking the world not in terms of fixed laws and regularities, but as disturbances and turbulences, revealing diverse forms, uneven structures, and fluctuating organizations" (Serres et al.,1983). From this perspective, stable systems or structures do not exist, and things neither behave predictably nor repeat functions in the same way. Architecture rooted in static descriptions and the idea that form directly corresponds to functional rationalism becomes unconvincing in this context. The pursuit of idealist architecture—whether to fit an ideal reality or driven by the genius of the architect—is now outdated. This signals a theoretical deadlock, where traditional justifications for architectural form lose validity. Alternative architectural practices emerging in the 1960s, such as Archigram, Hans Hollein, Ant Farm, Buckminster Fuller, and Coop Himmelb(l)au, challenged this deadlock. By idealizing technology and claiming ethical positivism and aesthetic neutrality, these attempts revealed that form and function are shaped not only by aesthetics but also by social, philosophical, technological, and cultural contexts. For Eisenman (1976), this "functionality deadlock" and the accompanying sense of displaced positivism mark the final phases of humanism, suggesting that humans may no longer be at the center of the world, neither are they the *originating agent* of architecture. His ideas are significant for two reasons for this article. First, they align with Negarestani's (2014a) notion that "the world can be constructed independently of the human scale." Second, they highlight that architecture cannot operate within a closed, internal system. Instead, it must expand its boundaries and engage with the *broader world.*

The idea that architecture cannot be produced within a closed system has expanded the traditional focus on function to include networks, infrastructures, and flows, emphasizing relationality, interaction, and interconnectedness. While this perspective helps architecture establish relationships beyond its immediate scale and align more closely with the flows in the world, it also risks reducing architecture to a simplistic system of inputs and outputs, potentially dissolving architectural design into these networks.

For example, "Banham and Dallegret's *Environment Bubble* reimagines the house as a baroque community of household gadgets illustrating the complexity of life, integrating mechanical, electrical, and structural systems" (Sprecher, 2010). This merging of climatic, wireless, and grid-based energy systems illustrates the dissolution of architectural form, representation, and the object itself (Moon, n.d.). Similarly, "Superstudio's *Microevent/Microenvironment* warns of design's disappearance, envisioning life without objects and presenting a model where design processes and environments interact symbolically. This pursuit of flawless rationality ultimately leads to self-reflection, causing design to withdraw from circulation" (Braham & Hale, 2006).

In these examples, architecture is instrumentalized by reducing it to the behavior and capacities of mechanical systems. However, recognizing the chemical and ecological connections between climate, materials, soil, and geology frees architecture from the domain of the visible—dominated by symbols and narratives—and shifts it toward the invisible. This shift encourages architects to explore interventions in environmental, biological, and physiological layers. Such an architecture, which fosters continuous interaction with the challenges of an interconnected world, suggests that design thinking and processes must evolve. This evolution would allow the integration of the parallel development of diverse, heterogeneous elements into architecture

itself. Buckminster Fuller's work across various scales, guided by his concept of "total thinking," serves as a compelling example in this context.

Buckminster Fuller represented his geodesic domes as embodiments of "comprehensive, anticipatory design science," aiming to advance toward an ideal of well-managed resources by challenging conventional artistic and architectural forms (Díaz, 2014b). He believed that these forms could address global issues if approached differently, viewing design as a dynamic process and action rather than a singular object. Fuller had the unique ability "to see our world as an interconnected whole," a perspective described as "total thinking" (Díaz, 2014a). Architect Lindy Roy supports this view, stating, "in Fuller's technique, form can no longer, even in design disciplines, be said to be a thing but, at the very least, a set of variable relations held in dynamic equilibrium." Fuller argued that design processes, by focusing on the structural constitution of form rather than its surface appearance, could uncover universal truths within patterns and networks. This perspective linked architectural form to the redistribution of resources and consumption patterns. By extending architecture beyond its conventional scale, Fuller emphasized its relationship with the broader world. His concern for the environment and resource scarcity is evident across all scales of his work, from the personal to the cosmic. This consistent focus influenced both architectural and non-architectural fields, highlighting the transformative potential of his approach (Figure 1).

Fuller does not merely discuss design thinking at every scale or advocate for *interscalarity*[1] in architecture. Instead, he asserts that architecture has the capacity to create interactions that connect different scales, making the relationship between the microscopic and the planetary understandable. What sets Fuller apart from the conventional idea of interscalarity is the *jump* he encourages to take. This jump goes beyond merely establishing relationships between adjacent scales; it is not a smooth zooming in and out. Instead, in a world that acknowledges discontinuities, it represents a shift into an entirely different scale.

Fuller's approach foreshadows an architecture capable of establishing relationships across various scales while disconnecting the concept of scale from human agency. For Rawes (2013), this novel approach redefines architecture as "a generator of relational ecologies of transformative practices," envisioning it within an expanded field[2]. This perspective not only redefines the boundaries of architecture but also enhances its capacity to engage with other disciplines, fostering a transdisciplinary approach to design.

In this context, my interest lies in viewing scale as a mediating surface between disciplines, capable of stimulating creative production and generating new architectural thinking that emerg-

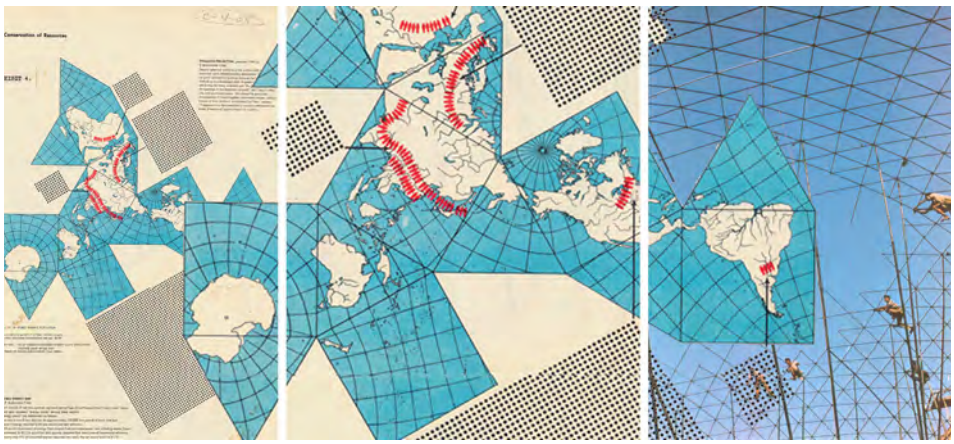

Figure 1. *Fuller's conservation of resources map and geodesic domes (Collage Eda Yeyman, 2024b). Retrieved from: https://www.e-flux.com/architecture/structural-instability/208706/insecure-predictions/ and Díaz, E. (2014b).*

es from transitions between subatomic dimensions and planetary scales. By redefining scale as both an operation of thought and a navigable plane, I aim to explore how scale mechanisms can inspire alternative approaches to architectural thinking and making. Hecht's (2018) observation that "scale is messy because it is both a category of analysis and a category of practice" highlights the dual nature of scale. This insight suggests that our examination of scale often operates within established frameworks, without questioning their underlying assumptions. As both Hecht (2018) and Horton (2021) note, when applied to the humanities, scale can move beyond a field of analysis or criticism and become a new horizon for thought. Building on Horton's approach in *Cosmic Zoom* (2021), I propose understanding scale as a sequence of *relational dynamics*, emphasizing its role as a *process* that operates along a spectrum, before fixed identities are established. The scalar mediation process occurs in two stages. The first is framing, which involves gaining access to other scales through knowledge and technological means. This framing corresponds to the stabilization of scale, giving rise to certain *milieus*[3] (Horton, 2021). The second stage is differentiation, where ongoing distinctions among elements lead to the formation of entities at new scales. In a *metastable*[4] milieu, the stabilization process is temporary and serves to create a framework that defines the scale. This perspective suggests that predefined boundaries are not permanent and that our perception of the world can shift, enabling us to relate to other domains or fields through scale. In other words, each discipline manages scale differently. As Horton (2021) explains, each trans-scalar entity has its own navigation system, allowing it to focus on specific details while remaining unaware of others, thus highlighting the selective nature of perception. For Horton, this selectivity corresponds to *resolution*—disciplines are constrained by the resolution of scales, meaning each discipline selects a scale as its resolution of choice. This understanding of scale blurs the boundaries between disciplines, serving as a *surface of mediation* between encounters.

If disciplines divide the world into scales and produce knowledge at those boundaries, any transition between disciplines—whether it corresponds to different dimensions of scale—inevitably involves a shift in scale and the discontinuities and jumps mentioned earlier. This highlights why a new understanding of scale presents opportunities for architecture: by enabling the creation of new relations each time, it brings together various fields of knowledge, disciplines, and scales to *reconstitute their contiguities*.

Therefore, I propose viewing scale as a *mediating surface* and suggest that exploring the jumps and interconnections between scales can stimulate creative production, fostering new architectural thinking that emerges from transitions between subatomic dimensions and planetary scales. To make these scalar jumps visible, I use the concept of *verticality*, which encourages an architecture that can involve different speeds and temporalities simultaneously, and therefore suggests the continuity of the design process to encompass effects that have not yet emerged but could arise over time. This approach examines how spatial construction practices—shaped by a non-cartographic scale and starting from micro-subatomic configurations—can influence contemporary architectural practice.

As a case study to explore verticality, I propose re-reading the works of Philippe Rahm, who investigates transitions between micro and macro scales—from entropy to architecture—and navigates across these scales by holding together distinct levels of organization through translation. Moreover, by employing the concept of the 'dynamic whole,' Rahm integrates the evolving characteristics of environments over time, aligning precise interventions with the unique properties of each scale. I suggest that the significance of design lies not in its scale but in its ability to engage with heterogeneous flows and intelligences, positioning architecture as an interface that fosters immediate contiguities across disciplines and scales. By re-reading Philippe Rahm's built projects, I aim to investigate what discourse alone cannot achieve and expose the gaps between theory and practice,

thereby highlighting the limitations of discourse's creative capacity within architecture. Treating practice as a mode of research, this exploration seeks to uncover new possibilities in the interplay between theory and practice. A critical component of this endeavor is defining the frames for this re-reading, as these frames are designed to catalyze new approaches to architectural thinking and making. The following section will first outline the theoretical background underpinning these frames, followed by an analysis of Philippe Rahm's work.

2. Reconstituting the contiguities

The functioning of scale as a mediating surface between different domains is only possible through the establishment of new forms of communication between them. For Serres et al. (1983), this communication entails "traveling, translating, and exchanging"—in other words, passing into the site of the Other. What Serres ultimately seeks is the universal possibility of translating any thematic into another. The key question, then, is: how does one enter into communication through architecture itself? I believe this can be achieved through a more holistic approach to architecture and by incorporating "other forms of making" that consider how to translate diverse voices in the design process. These "other forms of making" necessitate stabilization processes—like scalar mediation does—which I will refer to as *frames* in this article to establish immediate contiguities.

In this context, I propose that thermodynamic theories offer a valuable framework for addressing contiguities between *disciplines (Frame 1)* and *scales (Frame 2)*, enabling interscalar jumps like Fuller's approach. Within the realm of complexity theories, thermodynamics has gained prominence in architecture due to a shift from reductionist analyses toward systems operating "at the edge of chaos within an order" (Fraser et al., 2005). These theories emphasize the significance of systems capable of generating far-from-equilibrium states and producing multiple outcomes over time, which have profound implications for architecture.

Kugler and Shaw (1990) argue that examining a system at the moment of individuation reveals impacts across various scales, not just one. Similarly, Prigogine and Stengers (1984) demonstrate that while microscopic elements function independently under equilibrium, they collaborate under non-equilibrium conditions at the macroscopic level. Although this coordination is not uniformly coherent across scales, it suggests that changes at the subatomic level can influence broader configurations. This implies that understanding and intervening in a system requires consideration of multiple scales. Changes occurring at a single scale are insufficient to grasp the full complexity of the system.

Thermodynamic principles, therefore, provide not only a richer understanding of scale but also openness to multiple futures, unforeseen time-space outcomes, and non-linear cause-effect relationships. These principles appear to have the potential to connect and extend beyond their immediate scale, suggesting their relevance for architecture, which often operates on the edge of instability.

For some architects, the principles of thermodynamics and the behaviors observed at the subatomic level "signify the emergence of an architecture capable of integrating the microscopic and atmospheric, the biological and meteorological" (Daniell, 2013). Thermodynamics not only facilitate connections between disciplines like architecture, physics, and biology but also enable communication across scales. However, when we discuss scale across disciplines, the dialogue often becomes fragmented, contradictory, and confused. Expanding architecture's interactions with other disciplines should not merely aim to establish mutual understanding but should instead foster relationships that reconstitute contiguities in response to current architectural challenges. Much like scale, architecture itself could serve as a *surface of mediation* or an *interface* between encounters, as Fuller suggests.

Fuller proposes that we design spatialities that act "at once as interfaces and placeholders for very different kinds of intelligence" (De la Cadena & Blaser, 2018). By this, Fuller does not mean that each architectural project should form a microcosm within itself. Instead, he ad-

vocates for spatial practices that better connect with the world's flows, striving to view the world as an interconnected whole. For Fuller, architectural thinking itself becomes an interface, where the significance lies not in the scale of design but in its capacity to engage with heterogeneous flows and intelligences operating at different speeds.

Building on this, the third frame of analysis is *temporality*, which emphasizes the continuity of relationships with a metastable world—whether these connections occur as one-time events or repeatedly *(Frame 3)*. This distinction significantly impacts architectural design across various scales. To explore this difference, I will examine Philippe Rahm's architectural and landscape projects, particularly focusing on how landscape projects, with their ability to engage more temporal layers, may produce more active interventions than architectural ones. Rosalind Krauss' essay *Sculpture in the Expanded Field* (1979) will serve as a framework for expanding the boundaries of architectural design. This approach shifts the focus from predefined categories, encouraging architecture to exist "*on the periphery*" and embrace new possibilities.

Krauss (1979) diagrams the relationships among the various disciplines in the newly expanded field of architecture, contextualizing 1960s sculpture with landscape and architecture for the first time. Similarly, combinations of architecture with landscape, biology, and program can create new forms that, while not exactly architecture, provide a productive way to engage with these external fields (Vidler, 2004). By the 1950s, this avant-garde nomadism had become exhausted, leading sculpture to explore domains outside of itself. This exploration resulted in forms that were neither sculpture, landscape, nor architecture. Examples include combinations of "*landscape*" and "*not-landscape*", such as Robert Smithson's 'Spiral Jetty' (1970) and Michael Heizer's 'Double Negative' (1969–70), as well as "architecture" and "not-architecture," exemplified by the works of Richard Serra and Robert Irwin, among others. As Krauss (1979) argues, each instance of these axiomatic structures involves some form of intervention into the actual space of architecture. Instead of choosing one side in these diagram structures that operate as opposites of each other, Krauss (1979) aims to expand the field of architecture by making it possible to be on the peripheries of this diagram; in this context, sculpture and landscape emerge as terms that can be on these peripheries, among other differently structured possibilities. Another significant aspect addressed in the article is that Krauss (1979), in expanding the field of sculpture or landscape, benefits from the examples involving *'other forms of making'*, which could be seen as a reason for this expansion.

From this perspective, the architect bears the responsibility of employing "other forms of making" to establish contiguities that address contemporary architectural challenges and better connect with the flows of the world, regardless of the design's scale. In other words, while architectural and landscape architecture projects may differ in their capacity to engage with various speeds and intelligences, the role of the designer/architect remains consistent.

The architect acts as a *translator* of the diverse voices of disorder in the world, navigating across different vocabularies to foster communication between disciplines. An architecture capable of translating these voices can encompass multiple scales, from subatomic particles to galaxies, reshaping spatial construction practices and functioning as an interface between the world's multiplicities. The central question, then, is: how can architecture infiltrate and engage with this complex, blurry domain of multiplicities? The following section will explore the architect's role in addressing this critical challenge.

3. Unfolding the vertical

Architectural practices that incorporate complexity theories or thermodynamic principles—grounded in the micro-subatomic layer, quantum physics, and entropy—redefine architecture as a form of action that emerges when the world shifts away from equilibrium. For architecture to effectively intervene at any scale, it must first reconstruct the "given" by establishing a new plane of operation. According to Debaise (2012), this plane arises

from individuation processes within ongoing experiences through practices and cuts. The ability to abstract a segment of these experiences allows for the creation of a temporal and spatial plane that fosters further development. This plane is essential for architecture to act as an interface, enabling inter-scalar interventions and jumps—the core focus of this article. While Barad (2007), Horton (2021), and Ruyer (2016) conceptualize this plane differently—*as agential cut, resolving cut, and verticalism,* respectively—they all assign a similar role to architects in navigating and shaping these processes.

For Barad (2007), making the cut *-agential cut-* is essential for navigating our relationship with the multiplicity of the world. In her framework of agential realism, the agential cut does not mark a fixed boundary between subject and object. Instead, it refers to the active and contingent processes through which distinctions between subject, object, and the agencies of observation are enacted. For Barad (2007) these boundaries are not pre-existing but are created through specific material-discursive practices. Therefore, agential cuts are momentary stabilizations that define what is included or excluded within a phenomenon in a single action. According to Barad (2012), these cuts do not represent an absolute separation but rather a simultaneous "cutting together/apart," holding together disparate elements while distinguishing them. Barad questions how knowledge is produced and how reality is perceived through these cuts, describing them as spatiotemporal dissolutions. This perspective fundamentally shifts our understanding of how boundaries, distinctions, and entities emerge. It emphasizes the inseparability of observation, matter, and meaning, advocating for a more integrated and entangled view of the world.

This holistic approach and the process of the agential cut closely resemble the scale mechanisms discussed earlier. Building on Barad's (2012) concept, Horton (2021) introduces the idea of the "*resolving cut*," which stabilizes scale domains through a process of negotiation, isolating a specific scale by anchoring a segment of the scalar spectrum. It accomplishes this by using a medial apparatus to determine which features become readable or legible for the assembly being cut. A resolving cut not only differentiates time and space within the spectrum but also establishes a connection between two distinct parts of it, creating fundamental ontological differences by resolving the separation between the surface of observation and the surface where trans-scalar details emerge. Horton (2021) explains this process using the metaphor of a *scalar lens*. For Horton (2021), each discipline acts as a scalar lens, shaping how certain objects are resolved and understood. While knowledge producers can observe and measure the scale of objects, this capacity depends on a prior disciplinary resolving cut that defines the boundaries of inquiry. This cut delineates the scale, isolating specific assemblages or components as distinct, individuated objects. Horton's (2021) framework suggests a move away from rigid disciplinary boundaries that traditionally shape resolving cuts, emphasizing the interconnectedness of all assemblages. For Horton (2021), although all disciplines engage in the process of making resolving cuts, the posthumanities play a unique role. They critically challenge these resolutions and weave the cuts into dynamic and transformative constellations, fostering a more holistic approach to understanding scale as both an ontological difference and a construct of knowledge.

Both Barad's (2012) and Horton's (2021) ideas align with Ruyer's (2016, 2018) concept of verticalism by addressing the construction of knowledge, including momentary stabilizations, visibility, and the establishment of connections between two distinct parts by holding them together. However, unlike Barad (2012) and Horton (2021), Ruyer's verticalism (2016, 2018) describes this 'holding together' by referencing the developmental stages of organisms, which are intrinsically tied to time, and how they sustain themselves as wholes, offering a new approach to the design of systems that embody these properties.

Ruyer, a philosopher influenced by Simondon and deeply engaged with science, biology, and informatics, perceives matter as an activity, thus making mat-

ter and time inseparable. This perspective raises critical questions about the processes of individuation that constitute the cosmos—processes inherently marked by varying developmental paces and the challenge of distinguishing forms along lines of continuity. Ruyer (2016) explores these processes of individuation through the morphological analysis of organisms. However, rather than treating an organism as a complex machine with pre-formed parts operating within fixed circuits of interaction, he envisions it as a self-building entity with intrinsic unity. Ruyer (2018) emphasizes that without incorporating a vertical dimension—a layer that allows for the observation of coexisting developmental stages—the processes of morphogenesis in living organisms cannot be fully understood. According to Ruyer (2018), an organism can function even during stages where it lacks the necessary parts for the functioning of the completed machine. He illustrates this with the example of a human embryo developing its brain, heart, and lungs simultaneously, which also manages to survive while 'building' the brain, heart, and lungs—organs without which it cannot live once it is born. He argues that this is possible because the process is a goal-directed activity along a continuous line of development and more importantly, he describes wholeness as a dynamic concept.

To illustrate this, he uses the metaphor of a melody, arguing that a melody cannot be fully understood by isolating and analyzing individual notes. Its unity emerges from the temporal interplay and relational coherence of those notes, with each note gaining meaning within the context of the melody's overarching structure. This structure unfolds over time yet is experienced as a complete, meaningful whole. This idea underscores that even in temporal processes, unity can persist throughout their duration. More importantly, it highlights that wholeness is an experienced phenomenon that resists reduction to mechanistic parts, fundamentally altering the part-whole relationship.

This paper employs Ruyer's (2016, 2018) concept of *verticalism* not only because it introduces the notion of a *dynamic whole* but also for its implications for systems exhibiting such properties. First, by resisting reduction, verticalism acknowledges the discontinuity among coexisting developmental stages within a system and proposes different interventions for different scales. Second, due to its intrinsic unity, it facilitates translation between distinct organizational levels across the vertical cut.

This dynamic whole is non-reducible to its parts because each part participates in the whole directly and fully, contributing to and being shaped by its internal coherence. Consequently, the frontiers of intervention in systems spanning multiple scales also become non-reducible. Negarestani (2014b) suggests that instead of extending the constructive potentials of upper levels directly to lower ones, designers should identify equivalent manipulation conditions from macroscopic levels at the microscopic scale. In other words, the rules of manipulation and function cannot be overextended from one level to another due to the discontinuity between organizational levels. This discontinuity necessitates precise interventions aligned with the unique properties of each scale. Negarestani (2014b) therefore argues for the simultaneous deployment of top-down and bottom-up approaches, along with the *realignment of various models of intervention* in relation to one another. This realignment entails not only addressing individual scales but also navigating across them. In this context, a vertical layer plays a crucial role by revealing each 'note' (in the metaphor of melody), fostering communication that maintains coherence over time and holds together distinct levels of organization within a system. For Serres et al. (1983), this communication occurs through "translations," where each synchronic cross-section carries its own conditions of translatability. Importantly, the process of translating one system into another does not collapse the entire vertical cut into a single unified system. Instead, it unveils the distinct 'notes' within the broader system, preserving their individuality while sustaining overall coherence.

These implications of verticality provide new approaches to architecture by fostering designs that can accommodate different speeds and temporalities. The

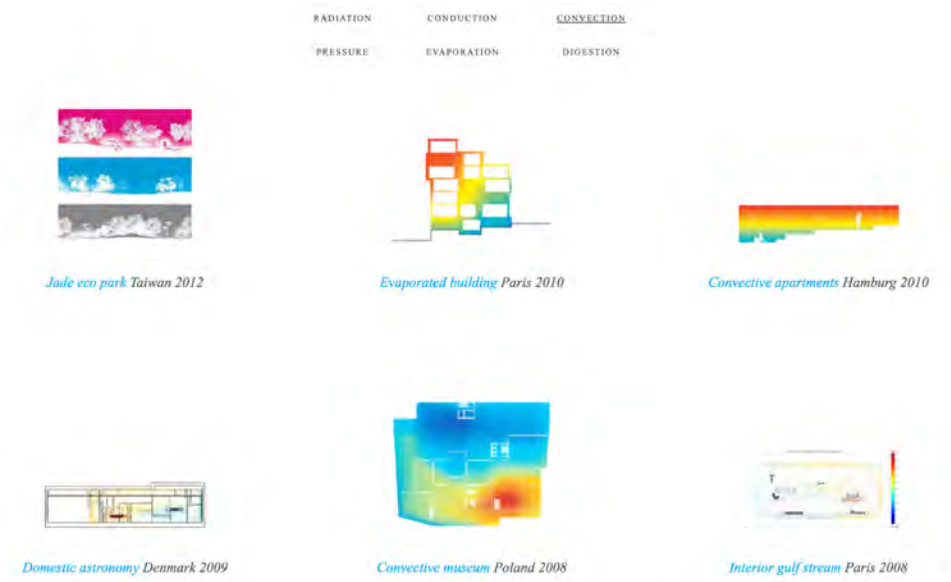

Figure 2. *Phillippe Rahm's categorization system. (Rahm, P. (n.d.). Retrieved from http://www.philipperahm.com/data/convection.html).*

translation of different 'notes' enables architecture to integrate the dynamic characteristics of environments over time, while the realignment of interventions across scales creates an architecture that serves as a mediating surface between various scales and disciplines, enhancing its inclusiveness. This understanding transforms the design process by broadening it to include effects that have not yet emerged but may develop over time, as suggested by Ruyer's (2016, 2018) concept of the vertical. The design process must remain open to heterogeneous flows that influence it at various moments and, crucially, be capable of translating these encounters. In this context, Negarestani (2014a) uses the term '*re-cut the world*' to highlight the continuity of the design process: '*re-cut the world to allow for the constitution of new events, new materials, new construction methods, and new scales.*' This re-cut entails re-engagement and reinvention whenever a difference arises in the 'dynamic whole,' a challenge that is far from straightforward in practice. Its implications for landscapes and architectural projects will be explored in the next section.

4. Re-reading climatic singularities: Philippe Rahm

In this section, two works of Philippe Rahm; IBA Hamburg-Convective apartments (2010) as an architectural project and Jade Eco Park (2018) as a landscape project; will be explored as an analysis model where the interscalar conditions of architecture are made more evident, highlighting those who dare to make these jumps and connect the configuration of the subatomic level with architectural design methods. These two works were chosen for their ability to establish relationships with diverse data by translating multiple voices across different ranges and for the distinct approaches they offer to the question of how to enter into communication through design.

Rahm (2009) uses thermodynamics to create architecture that is open to multiple futures, with non-linear relationships across different scales. His designs are based on climatic data—an invisible, metastable parameter—and navigate between sensation and phenomenon, as well as between neurological, meteorological, physiological, and atmospheric factors. Rahm (2009) advocates for a shift from conventional design thinking based on composition to one that embraces thermal, structural, and climatic considerations, moving from narrative to meteorological fields. He integrates air currents, air quality, temperature variations, and human physiological responses, creating spaces that interact with measurable human characteristics such as melatonin and erythropoietin. This approach forms an interscalar architecture that functions as

an interface between the human body and space.

Rahm (2009) asserts that air, light, and humidity are the core elements of his meteorological architecture, with principles like convection, conduction, and diffusion guiding his design. His works deviate from mainstream architectural programs, scales, or typologies, resulting in air-conditioned spaces that serve as a second meteorology, triggering sensory exchanges between body and space. (Figure 2).

Rahm (2015) designs microclimates to differentiate spaces and maintain human homeostasis. For example, users can move between temperatures ranging from 12°C to 28°C, with variations based on movement, clothing, nutrition, or social context. According to Rahm (2015), all solutions ensuring homeostasis are architectural, with space differentiation guided by corresponding tectonics.

In this context, Rahm, through his successes and limitations in these two projects, addresses the question of what happens when architecture is considered on a micro scale and how it affects architectural thinking and practice. He aims to incorporate the dynamic characteristics of the environment into his design decisions, as changes in comfort conditions will also alter the atmosphere he creates.

After this brief introduction to Rahm's design approach, the table below provides descriptions and images of the selected projects for this article: Jade Eco Park and IBA Hamburg, before I establish the frames for re-reading. (Table 1).

In this context, I suggest looking at the projects through the frames mentioned in the previous section and re-reading them accordingly: frame 1: *contiguities of discipline,* frame 2: *contiguities of scale,* frame 3: *temporal dynamics.*

4.1. Frame 1: Contiguities of Discipline

Philippe Rahm establishes transitions between thermodynamic principles and architecture. His approach involves designing spaces by focusing on micro, invisible, sensory, and physiologically reactive details, achieved through passive systems and emerging technologies. The conditioned interior spaces Rahm creates largely stem from their ability to facilitate new interdisciplinary relationships. Although the data he utilizes primarily belongs to fields like engineering—encompassing electrical, mechanical, plumbing, ventilation, and wireless communication—Rahm filters and translate this information through his unique perspective to construct the space itself by using gradient maps and by reversing the conventional process for architectural design.

In each project, Rahm develops a new topography to connect thermodynamics and architecture. While the specific variables and programs of this "thermal topography" differ from project to project, the underlying concept of topography remains consistent. Rahm (n.d.) focuses on crafting microclimates using gradients and elaborates on the idea of "gradual changes in microclimatic conditions", stating that "there are multiple colors between blue (cold) and red (heat) in the environment, allowing functions to distribute spontaneously across this thermal topography without requiring designer intervention." Therefore, by using "thermal topography" Rahm (n.d.) dissolves conventional structures and programs in architectural design and re-consider the existing boundaries between functions. The production method and the layers comprising this thermal topography are shaped by spatial organization decisions. For example, in the IBA Hamburg project, a single-layer thermal topography is applied in a sectional plane to distribute various functions, while the Jade Eco Park project utilizes a three-layer overlapping topography on the plan to distribute densities rather than specific functions. (Figure 3). The difference between these two projects arises from the simultaneous microclimates intended to be created. In the IBA Hamburg project, the functions have distinct microclimates occurring simultaneously, while in the Jade Eco Park project, it is the people who experience different microclimates at the same time.

What Rahm actually does is inter-

Table 1. *Comparison of IBA Hamburg and Jade Eco Park. (Eda Yeyman, 2024a).*

IBA Hamburg Apartments

IBA Hamburg apartments exemplify Rahm's exploration of thermal topography, emphasizing air movement based on the Archimedes principle where warm air ascends and cool air descends. Rahm suggests there could be a difference of up to 10°C between the ceiling and floor in homes, with different programmatic correspondence. Rahm (2015) argues that each room does not necessarily need to adhere to Swiss standards of 20-22°C, instead determining temperatures based on activities and clothing layers. For instance, corridors, where little time is spent, may be maintained at 15°C, while living rooms, where occupants are stationary and clothed, are set at 20°C, and wet areas, typically frequented barefoot, might reach 22°C. Rahm conceptualizes house sections based on these varying needs, adjusting floor and ceiling heights accordingly; sleeping areas might be lower in section, while bathrooms higher, creating a thermal topography where occupants can freely select preferred temperatures throughout the year.

According to De Rycke and Gengnagel (2017), to achieve this, Rahm manipulates floor horizontality to accommodate diverse spatial requirements, utilizing level differences to guide air flow from lower to upper floors, thus establishing a vertical heat gradient. The circulation system facilitating this vertical heat distribution also functions as an air reservoir, employing a double-flow air renewal system with a heat exchanger. Constructed from eco-cement that absorbs CO2 and pollutants, this system purifies air before entering apartments. Thermal sensors strategically placed outside and within the building monitor air temperature in real-time, adjusting air intake locations seasonally—drawing air from southern, sun-exposed facades in winter and northern facades in summer (Rahm, 2015). Additionally, from landscape to furniture design in the project, choices are made that do not obstruct and degrade the air flow; the heat retention and transport capacities of the materials used are also considered - up to a certain extent. For instance, curtains are installed to prevent excessive heating of the external facade, which is made of triple-glazed glass with a high thermal coefficient. This applies to the furniture used inside the house as well; furniture is selected to not obstruct air flow and is hollow and portable, foldable beds are made of natural wood to absorb excess moisture, and contribute to regulating humidity within the apartment. Landscape elements are also chosen with this context in mind. The building initially takes in air from the outdoor environment with the main wind blowing from the southwest, and before the air enters the building, it is met with feathery-leaved trees placed on the southwest side that can absorb the dust and dirt of the air. "In order to heat the soil and absorb maximum light in the south, almost black, very dark grass is replaced by white-green grass in the north to reflect maximum light and not heat the soil" (Rahm, 2015). Therefore, although artificial climate control elements are used in the project, it can be said that the priority is to reconstruct passive climate control conditions from elsewhere. Thus, Rahm creates a homogeneous space separated only by level differences between circulation and the outer shell.

Jade Eco Park

The Jade Eco Park project is situated in Taichung, Taiwan, developed on the site of a former airport and integrated into a new neighborhood (Rahm, 2015). According to Bullivant (2007), it aims to establish comfortable conditions in an urban environment without relying on enclosed spaces and air conditioning The park's objective is to mitigate Taichung's extreme subtropical climate, ensuring a refreshing experience for residents and visitors. 'The park's climate has been adjusted to be cooler (shaded areas), less humid (by reducing airborne moisture and safeguarding against rain and flooding), and less polluted (incorporating filtered air free from gases and particulate matter)'(Garcia, 2014).
While Rahm's goal of atmospheric modification aligns with his other projects, implementing such changes across a large area is impractical. Therefore, Rahm initially identifies and enhances naturally cleaner (far from traffic), cooler (exposed to northward cold winds), and drier (protected from southwest humidity) areas. To achieve this, Rahm models existing climate conditions and uses fluid dynamics simulations to establish a three-tiered climate map. Each map primarily features variables like temperature fluctuations, humidity levels, and air quality. According to De Rycke and Gengnagel (2017), by overlaying these maps, Rahm identifies the park's coldest, driest, and cleanest zones. Here, specially designed artificial 'Climate Devices' and broad-leaved trees are strategically placed to cool, dry, and purify the air according to specific climatic profiles. The artificial Climate Devices represent the most controversial structures in the project; they can simulate rain, provide warmth via infrared light, function as fountains to cool surroundings, or act like clouds to cool and cleanse the area with water vapor (Rahm, 2015). Additionally, guided by these simulation models, the park is segmented into 11 zones, each tailored with programs suited to its unique climatic conditions. These three maps are continuously updated in real-time throughout the day and year, without reliance on static simulation models. Users access these maps through an application to select their preferred climatic conditions in the park at any given time.
Furthermore, the park strives to minimize energy consumption by adhering to passive climate control principles. For instance, electricity is solely used for fans to circulate air, and the park has the capacity to generate its own electricity.

pret and transform heat maps; in other words, the act of transforming a map into a space is, in essence, a process of translation. In the IBA Hamburg project, he approaches this task by examining the relationship between heat and height, determining the placement of both heat sources—such as radiators—and functions based on the principle that warm air rises. Rahm achieves this by dividing the floors into distinct zones and adjusting their proximity in vertical sections, thereby creating different microclimates within the same floor. Apart from fixed functions like toilets or bathrooms, decisions about how the house is used are left to the occupants, who interact with the space by moving furniture to different levels according to their preferred temperature range. Rahm designs these floor slabs in relation to radiators positioned at various heights throughout the house. In this context, the height, spacing, and power of the radiators are primary considerations in his design process. Thus, Rahm prioritizes climate-related details—ventilation, radiator placement, humidity con-

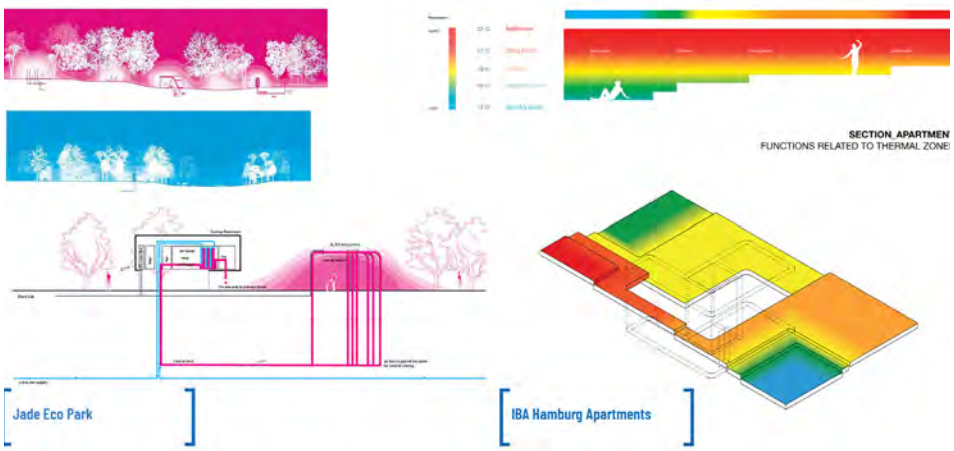

Figure 3. Phillippe Rahm's thermal topographies (Rahm, P. (2010-2012). Retrieved from http://www.philipperahm.com/data/index.html).

trol, and meteorological factors—early in the design process, effectively reversing the conventional design sequence. This reversed approach has become a core design principle for Rahm, evident in nearly all of his projects.

Different than single layer of variable-heat- in Jade Eco Park Rahm focuses on individual variables: the first tracks temperature changes, the second monitors humidity, and the third measures air pollution. These maps depict the intensity of each atmospheric factor across the park. According to De Rycke et al. (2017), Rahm overlays these maps to identify the coldest, driest, and cleanest areas, forming a gradient that delineates maximum atmospheric conditions (pollution, humidity, and heat) while highlighting more comfortable areas where these factors are reduced by various methods. The spacing of the radiators transforms into the distribution of climatic devices in this project. Using these devices, Rahm designs simultaneous microclimates within the park to accommodate different comfort conditions. He argues (2009) that there is no single optimal condition that defines a perfect city or place. Instead, multiple configurations coexist, offering diverse possibilities. This coexistence of varying configurations across time and duration suggests verticality and, more importantly, introduces a new architectural practice based on instantaneous atmospheres. In this approach, spaces are defined solely by comfort conditions—microclimates—while the conventional boundaries of function and program dissolve. (Figure 4).

4.2. Frame 2: Contiguities of Scale

When designing contiguities of scales, Rahm consistently revisits the thermodynamic and air conditioning variables specific to each project. These variables are translated through gradient maps, which provide navigation across individual scales—starting from the micro level, such as entropy (10^{-10}), and extending to the macro level, including architecture (10^{2}) and landscape architecture (10^{3}).[5] By serving as a mediating surface between entropy and architecture, and due to the dynamic whole embodied by each project, it fosters distinct bodily interactions at the *meso* scale (such as 10^{-1}) too. However, Rahm employs a single gradient map for each project, using it as a substrate for decision-making across interior, architectural, and landscape scales. This means there is no secondary mapping focused on different data, suggesting that Rahm may miss the overlapping information between two distinct thermal maps in his design process. For example, in the IBA Hamburg project, since there is no secondary mapping that includes materials' heat retention and transportation capacities, material choices do not vary significantly throughout the project. As a result, spaces with low heat retention are rendered as plain, white surfaces. Additionally, furniture is selected for its open bottoms and portability to avoid obstructing airflow. While this approach emphasizes functional furniture forms, it neglects material

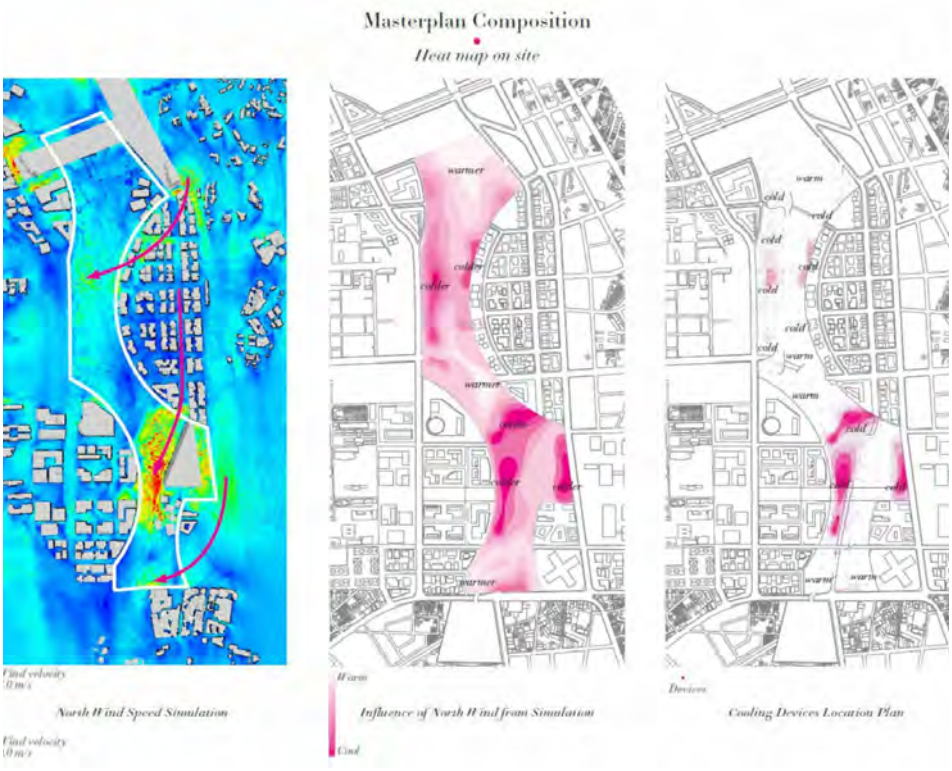

Figure 4. Jade Eco Park's simulation model and Climatic Zones (Rahm, 2012. Retrieved from: https://www.baunetzwissen.de/sonnenschutz/objekte/freizeit---sport/jade-eco-park-in-taichung-8324637/gallery-5/24).

Figure 5. Interior of IBA Hamburg Apartments. (Rahm, P. (2010). Retrieved from http://www.philipperahm.com/data/projects/convectiveapartments/index.html).

considerations, often leading to generic selections. (Figure 5)

However, this is a deliberate choice by Rahm. Instead of extending the potentials of the thermal map to the furniture scale, he chooses a neutral approach that doesn't alter the thermal conditions of the interior. This creates a discontinuity, allowing for precise interventions that align with the unique properties of each scale. Thus, the thermal map applies to the spatial organization, bypasses furniture and material choices in the interior, and shifts to the body scale, triggering sensory interactions with the human body. Consequently, Rahm's methodology does not aim for seamless transitions between scales. This discontinuity is particularly evident in the Jade Eco Park project, a landscape endeavor that creates its atmosphere through artificial and natural air conditioning, effectively establishing a "second meteorology." In an interview with Rahm, Garcia (2014) notes that in Jade Eco Park, Rahm selects plants like Acer serrulatum Hayata for its dense shading properties to reduce heat, Calocedrus formosana for pollution control, and Ficus microcarpa with aerial roots to capture airborne particles for moisture control. These density-driven decisions, informed by thermal maps, aim to balance natural and artificial air conditioning. This approach enables comprehensive adjustments in temperature,

Figure 6. Natural and artificial devices of Jade Eco Park (Rahm, P. (2012). Retrieved from https://www.baunetzwissen.de/sonnenschutz/objekte/freizeit---sport/jade-eco-park-in-taichung-8324637).

humidity, and air pollution across 11 'Climatic Zones' in Jade Eco Park, using a mix of natural methods (like plant and tree selection) and advanced artificial climatic devices. (Figure 6) The density and distribution of climatic devices create spaces that vary in comfort and enjoyment. Climatic properties overlap, diverge, regroup, intensify, or disperse, resulting in diverse atmospheres and microclimates that users can explore and adapt to according to their preferences (Rahm, n.d.).

As in Ruyer's (2018) melody analogy, the individual function of a single climatic device holds little significance on its own—once removed from the whole, a single device becomes meaningless. What matters is that the climatic devices within the park highlight different features—such as humidity, temperature, or clean air—throughout the process, creating instantaneous atmospheres. These temporal atmospheres then merge into the overall park design, forming a "second meteorology" for the city. The dynamic whole that Rahm achieves here is established through the interplay of artificial and natural elements with differing rates of development. To achieve the intended total effect, Rahm simultaneously realigns various models of intervention and employs both top-down and bottom-up design processes. For example, the overall placement and density of the climatic devices across the landscape are informed by measurable environmental data. Meanwhile, the landscape Rahm designs will only fully manifest in five to ten years, working in conjunction with the climatic devices to enhance or mitigate specific environmental effects. Rahm also designs these climatic devices to interact directly with the human body, creating localized microclimates in real time. Parameters such as pipe thickness and flow distances are meticulously planned to achieve this interaction. In this context, Rahm's approach exemplifies how the manipulation equivalents of upper-level interventions can be identified or developed at lower levels.

On the other hand, the thermal map and simulation model interact with human comfort indirectly. They rely on general physiological and climatic principles rather than measuring real-time body heat or humidity. The focus remains on monitoring and manipulating environmental factors such as wind, heat, humidity, and atmospheric conditions. Leveraging these variables, the design creates a range of microclimates that allow visitors to choose spaces based on their comfort preferences. Despite this, interaction depends on user decisions, leaving bodily relationships largely unaddressed. Thus, the dynamic whole here primarily consists of pre-defined boundaries established by Rahm at the outset of the design process. Rahm achieves this through both spatial organization and climatic devices. However, better results are achieved when the heat gradient is not confined within spatial boundaries -like in the IBA Hamburg project- but instead transitions from spatial organization to the instantaneous formation of thermal topography through atmospheres, as exemplified in the Jade Eco Park project (Figure 7).

This is essentially analogous to Ruyer's (2016, 2018) addition of a vertical layer to a fully functioning system, which makes the system's heterogeneous components visible. This diagrammatic approach renders the measurable data of the space *visible*, thereby opening up pathways for intervention. Initially, this interface was an inaccessible concept in early projects like IBA Hamburg. However, in Jade Eco Park, fluid dynamics simulations make the gradient accessible, enabling users to transition from passive participants to active deci-

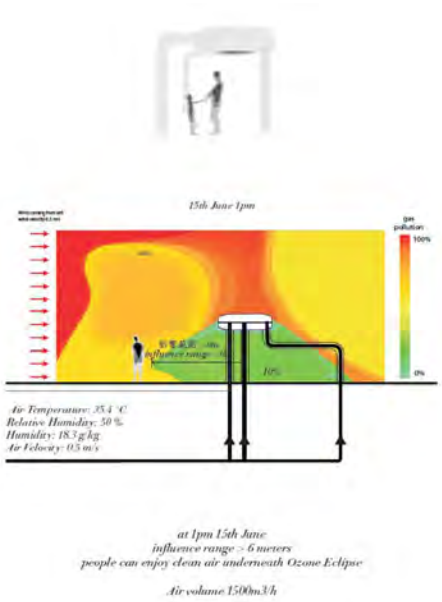

Figure 7. Diagram showing the interaction of human body and Climatic Devices. (Rahm, P. (2012). Retrieved from https://www.baunetzwissen.de/sonnenschutz/objekte/freizeit---sport/jade-eco-park-in-taichung-8324637).

sion-makers. The gradient maps are continuously updated with no fixed simulation model. Users can access the maps via an application, select their desired climatic conditions, and shape their own microclimates. The drawing technique of the gradient map also plays an important role. Rahm's drawings, which incorporate air, light, humidity, and wind as foundational elements, diverge from conventional architectural drawings and are more schematic. Rahm's (2009) exploration of a technical drawing method that aligns with meteorology and physical laws—integrating air movements, speed, water vaporization, pressure, and metabolism—emerged as a byproduct of the design process and establishes a new way of representing materiality. Through these schematic drawings that encompass various variables, Rahm effectively undertakes the translation task mentioned earlier, using drawing as a tool to represent and facilitate communication between diverse data pools. These drawings function as 'communication corridors,' as described by Serres et al. (1983), bridging different disciplines on a unified plane. While the interface effectively visualizes flows, it also has another significant outcome: it homogenizes them, enabling all elements to be viewed through similar values and treated as equivalent. This process blurs distinctions between human and non-human, living and non-living, fostering a more holistic approach to understanding scale—one that is indifferent to the project's size but focuses instead on "holding together" two distinct parts according to the chosen resolution.

4.3. Frame 3: Temporal dynamics

Philippe Rahm's approach to time and temporality varies significantly between IBA Hamburg and Jade Eco Park project. In the IBA Hamburg project, the relatively less advanced integration of technology results in a static relationship between biological knowledge and climate standards. As long as the passive climate control systems function as intended, their operation remains unchanged over time. Moreover, these systems do not incorporate user feedback, meaning there is no mechanism to adapt or evolve based on temporal changes. Designed to accommodate seasonal variations, these buildings define how mechanical systems respond to summer and winter temperatures, allowing for limited variation within the constraints of a preconfigured system. To allow for the previously mentioned new configurations, the "re-cutting" process is carried out by users as the seasons change, enabling different levels to be used for various functions based on heat gradients. The homogeneity and neutrality of the interior, along with the mobility of the furniture, become meaningful through seasonal changes.

In contrast, the Jade Eco Park project adopts a more dynamic approach. Unlike the static system of IBA Hamburg project, the park's three maps are updated hourly throughout the year, enabling real-time adjustments based on feedback from park users. This real-time interaction creates a continuously evolving system rather than a one-time setup. Sensors positioned every 50 meters collect environmental data, capturing variations throughout the day and across seasons. By comparison to IBA Hamburg, this project focuses sole-

Figure 8. *Instant atmospheres of Jade Eco Park (Rahm, P. (2010-2012). Retrieved from http://www.philipperahm.com/data/projects/taiwan/index.html).*

ly on temporal changes in atmospheric properties such as water vapor, temperature, and oxygen levels. However, it lacks predictive mechanisms for the site or landscape itself, such as changes in tree growth or shaded areas over time. (Figure 8) Notably, the scale of the project—being landscape architecture—introduces additional layers and heterogeneous intelligences, significantly increasing the volume of measurable data and cycles to consider compared to architectural projects. However, what enables intervention in this project is not the scale itself, but the climatic devices that create instantaneous atmospheres. Each new microclimate created is a product of this re-cut and opens the door to new experiences. Even if the dataset used remains constant, it accounts for different speeds and temporalities at the site.

5. Conclusion: Re-inventing the frames

At the subatomic level, the way architectural configurations relate to the molecular level challenges the boundaries between theory and practice. Relying on the idea that "the object of research and practice is architecture, and the tool is architecture itself" (Palmesino et al., 2013), seeing what discourse cannot do can only be achieved through the realization of a project.

Philippe Rahm's integration of climate systems with the biochemical dimension creates a good research area for the jumps between micro and macro scales, from entropy to architecture. His architecture becomes an interface sensitive to overlapping cycles and dynamics across disciplines and scales, suggesting that the significance of design lies not in its scale but in its ability to engage with heterogeneous flows and intelligences. This approach aligns with Fuller's concept of total thinking, which perceives architecture as part of an interconnected whole, and parallels Ruyer's (2016, 2018) verticalism, as it evaluates this whole as dynamic and operating at various speeds.

While re-reading Rahm's two works reveals new contiguities through defined analytical frames, it also highlights the limitations of his design approach and what must be sacrificed to embrace instantaneous atmospheres. Although the outcomes of the projects vary, each serves as a prototype. Rahm develops a design approach and multiple prototypes to explore the boundaries of this idea. As seen in this re-reading, Rahm's thermal topography constitutes the contiguities between disciplines and scales, acting as an interface that dissolves structures/programs and eliminates boundaries for free navigation. While this approach is theoretically liberating—shedding conventional meanings—in practice, these spaces, though seemingly open-ended due to gradient maps, must still adhere to human homeostasis requirements for specific temperatures. For instance, Rahm's design assumption of a living room at 20°C and a bedroom at 16°C reflects predicted lifestyle habits, limiting flexibility for users with different preferences. Additionally, every enclosed volume Rahm creates must function as a protected area—like a refrigerator—sealed off from external influences, as the required temperature levels are highly specific and any external interference could disrupt them. This disruption is better managed in the Jade Eco Park project, which focuses solely on generating simultaneous microclimates and atmospheres within the park.

Additionally, while these two frames reveal architecture's ability to communicate a temperature value, Rahm's methodology does not reduce architecture to the behavior and capacities of mechanical systems—reminiscent of the utopias of the 1960s. Instead, it demonstrates that innovative spatial constructs can emerge from such processes, fundamentally shifting expectations for design. In this approach, architecture is defined not by static forms but by the atmospheres it generates and the contiguities it enables through a continuous process of reinvention. However, this re-intervention or re-cut does not occur whenever there is a difference in the "dynamic whole"; it happens only when the project user decides to act. As revealed by the "contiguity of scale frame," this re-intervention is discontinuous—similar to verticality—and constrained in practice. While Rahm embraces Negarestani's (2014a) assertion that "it would be a fatal error to use and apply the same concepts interscalarly," the IBA Hamburg project fails to realign different scales, applying the same construction methods without adjustment as the scale shifts from architecture to interior spaces. In contrast, discontinuity does not disrupt spatial coherence and atmosphere in the landscape project, Jade Eco Park, since the climatic devices generate only instantaneous atmospheres rather than enclosed spaces. Thus, Rahm's success, particularly in Jade Eco Park, lies in his ability to design atmospheres that accommodate varying speeds and temporalities while employing a design process capable of integrating the dynamic characteristics of environments over time. By providing visibility into these dynamics, he presents a distinctive model for architectural practice—one where architecture acts as a mediating surface between various scales and disciplines, enhancing inclusiveness. Rahm's greatest achievement may be his resistance to reductionism and his redefinition of the part-whole relationship through the concept of verticalism. By recognizing the dynamic whole, he establishes communication networks between different systems and creates "communication corridors" through the act of translation or by producing interfaces that facilitate such exchanges.

To conclude, this re-reading suggests examining cases by initially establishing frames like scale dynamics, only to break them during the reading process. Because these frames make things visible -like different resolutions- and enable them to communicate with each other only when they are established. The aim here is to capture the slipperiness and movements that can construct contiguities to the current challenges of architecture and theory, and to construct a design process that can include this without giving up on constant re-intervention. Architecture, as the outcome of such a process, facilitates a deeper connection with the world and enables scale jumps through the creation of diverse interfaces. Here, the power of practice stems from working with theory as relays, 'practice is a set of relays from one theoretical point to another and theory is a relay from one practice to another' (Stengers, 2017). Therefore, the outcome of this research is not the reading method itself or the model for practice mentioned here, but rather critical self-reflection and a thinking tool that can be shared with others to enhance architectural knowledge. Because as Haraway (2020) posits, 'there are only a myriad of unfinished configurations of places, times, matters, meanings. Therefore, creating new conceptual frames, that encompass a world in flux—from subatomic particles to galaxies—and nurture spatial construction practices, depends on initially viewing architecture as a field that fosters interactions and then re-inventing the verticality which will bring new meaning to our relationship with the world that is at the edge of disequilibrium.

Endnotes

[1] *Interscalarity* in architecture refers to the interaction and relationships between different scales, particularly when considering how design elements operate and relate across various levels—from the subatomic to the architectural scale and beyond. The concept emphasizes how changes at one scale can influence others and how architectural thinking must account for the dynamic interconnections between these levels (see Horton, 2021).

[2] (see Krauss, 1979). Sculpture in the expanded field. *October, 8,* 31-44.

[3] The term *milieu* refers to the environment or surrounding context in which a phenomenon or interaction occurs. It can describe the material, social, or spatial environment that influences behavior, perception, and experience (see Prominski, 2014).

[4] 'Metastability can be understood as intrinsically delayed expenditure of potential energy' (see Rosanvallon, 2012).

[5] These values are defined based on the network graph of interscalar connections in *Powers of Ten Interactive* (1999) within the *Cosmic Zoom* (see Horton, 2021).

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After-theory canvas: Unveiling the representational spaces created by artistic production

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Abstract
The concept of space in architecture is referred to as representation. This encompasses various forms, such as drawings, photographs, models, and written texts about space. The primary objective of architecture is, however, to create spaces to be lived rather than merely producing representations. Art develops its form by employing these two fundamental aspects of architecture. Consequently, space is integral to the production of art, functioning as a subject, material, and canvas. The concept of "after theory" critically examines the necessity of theoretical frameworks, addresses the complexities associated with postmodernism, and places a strong emphasis on practical application. This approach can serve as a method for analyzing the relationship between art and space. Furthermore, "after theory" can contribute to the expansion of criteria for contemporary art, and facilitate the interpretation of artworks through diverse conceptual frameworks. The purpose of this study is to define architectural representation, generate alternative manifestos about space, and analyze the unity of art and space from the standpoint of after-theory. A thorough scanning process was conducted to identify contemporary artworks, resulting in the selection of twelve pieces that demonstrate an ability to incorporate spatial elements into the context of artistic production. The selection prominently featured works by renowned artists, including James Turrell, Yayoi Kusama, Olafur Eliasson, Tomás Saraceno, Anish Kapoor, Ai Weiwei, Doris Salcedo, Zimoun, Christo and Jeanne-Claude, Piknik Works, Refik Anadol, and Rafael Lozano-Hemmer. The evaluation criteria encompassed the blurring of frames, new thoughts, essence, site-specificity, know-how, and harmony and disharmony with the surrounding spatial context.

Keywords
After-theory, Art, Canvas, Classification, Space.

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1. Introduction

Space is a subject of inquiry across various academic and artistic disciplines. Fields like architecture take into account, debate, and create space as a central element. Space can be defined as a dynamic, three-dimensional void characterized by well-defined boundaries. From a conceptual perspective, space is essential for life and serves as a determinant of human habitation. It conveys its essence through diverse representations. Various disciplines have developed methodologies for representing space; for instance, in mathematics, space is defined using coordinates and numerical values, or it is the lines that show the image in three dimensions.

The interplay between art and architecture illustrates how space functions as a medium for representation. In spatial terms, representation within metaphysical perception is understood as a form of displacement, which refers to the notion of presenting itself in an appropriate context (Docherty, 2022, p. 117). This metaphysical perception is often associated with extrasensory perception. Displacement is characterized by the movement of ideas away from a fixed context, thereby acquiring new meanings. Within this framework, representation embodies both "what preceded" and "what follows" (Docherty, 2022, p. 118). Representation is inherently temporal and signifies the unrealized potential. In this regard, what is manifested in representation does not correspond to any prior essence. According to Docherty (2022, p. 118), postmodernism and representation are intricately linked, and this relationship encompasses critical aspects such as temporality, displacement, chrono politics, and geopolitics. The conventional understanding of representation implies a reference to an earlier sign; however, it is more accurately perceived as a domain for the production of alterity. Meaning significantly enhances the content of architectural features in spatial representations by invoking subjective images within the viewer's consciousness. These representations contain both the visible, concrete elements of space and their invisible, abstract counterparts. Moreover, perceiving architecture as an object, while concurrently integrating it with art as a subject, requires the simultaneous advancement of meaning.

Architectural experience is vital to the growth and differentiation of architectural representation, ultimately contributing to the creation of art. The concept of representation consists of two distinct processes: the representation of experience, which is a creative process, and the experience of representation, which involves an interpretative process (Fuente Suárez, 2016).

In architectural representation, there exist two fundamental layers: the "what," which refers to the architectural object, and the "how," meaning the representational medium. A thorough understanding of these layers is vital for grasping how individuals perceive and interpret their environment. The what has been referred to as the "content," "meaning," "message" or "subject," while the how has been seen as equivalent to concepts such as "form," "expression," "medium," "signifier" and "physical vehicle," among others.

The first process, referred to as the representation of experience, involves the structuring or depiction of external stimuli within the individual's mind. This process facilitates the transformation of sensory information into meaningful mental representations that can be stored and manipulated (Fuente Suárez, 2016). Such a transformation allows individuals to comprehend their environment, recognize objects, and form mental images. The second process is known as representational experience, which holds considerable significance in artistic expression and serves as a canvas for creative exploration (Fuente Suárez, 2016). Similarly to artists, architects integrate artistic elements into their work, thereby elevating representation to an art form. As a field of study, architecture involves far more than the mere construction of buildings; it embodies a fusion of creativity and functionality. Representation functions as a mechanism through which experiences take on concrete form. This process is inherently creative, as architects employ artistic sensibilities to impart

meaning and aesthetics to their work. The artistic components that architects incorporate into the representation of experiences are crucial in transforming architectural practice into a form of art. This transformation manifests in several ways, including the careful selection of materials, the strategic manipulation of space, and the incorporation of symbolic elements. By thoughtfully selecting materials, architects can elicit specific emotions or communicate particular messages. Furthermore, the manipulation of spatial design enables the creation of atmospheres that encapsulate the intended experience. A variety of presentation techniques have been developed and utilized within the fields of communication and information dissemination to enhance the experience of representation effectively. These techniques signify invaluable instruments for the effective communication of ideas, concepts, and data to an audience. Architects engage users by employing a range of representational tools, thereby enhancing the overall impact and memorability of the experience. Representation may take various forms, including a photograph that captures a specific detail of a building, a carefully prepared drawing that illustrates architectural elements, or an object that is strategically positioned within a space with aesthetic considerations. Such methods can substantially influence both the aesthetics and functionality of the designed environment. For an architectural representation to be regarded as a work of art, the aspects of definition and process are essential. By analyzing these foundational levels, one can attain a deeper understanding of the artistic quality embedded in architectural representation (Fuente Suárez, 2016). Consequently, it serves as a visual instrument to convey the essence of a design or space effectively.

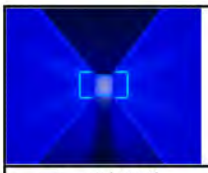
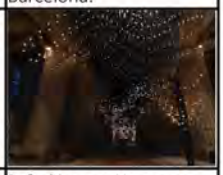
Form and representation are examples of how architecture and art converge. Since architecture is art, the artist must also interpret how it is represented. In their artwork, artists produce an illusion that influences the observer (Gombrich, 1960). From a conceptual and contextual standpoint, the illusion's impact is amplified by evolving technology and digital tools.

The primary objective of this study is to present a novel approach to analyzing the relationship between art and space. This approach encompasses various elements, including the nature of representation, the processes that contribute to content formation, the types of experiences that artworks evoke, their depiction of visual reality, the influence of time on perception, the generation of illusions, and the interpretation of meaning. Furthermore, the study investigates the concept of blurring of the frame, the introduction of new thoughts, the connection between representation and its underlying essence, side specificity, know-how composition, and the harmony and disharmony of spatial contexts. These factors serve as key criteria for the after-theory framework.

After-theory represents an approach that critically examines the necessity of theoretical frameworks within the fields of art and architecture. It addresses the challenges associated with postmodernism and encourages practitioners to prioritize practical application in their work. This framework fosters a broader understanding of art, prompting a reconsideration of its definition and role in contemporary society. It also explores the dual nature of art as both omnipresent and, at times, non-present, alongside a reevaluation of spatial possibilities within artistic expression. By exploring the interplay between space and art, one can gain insights into the significance of an artwork, its contextual relevance, and its conceptual implications. This examination deepens our understanding of how space is utilized in art and its influence on the overall meaning and impact of the artistic endeavor. The selection of artworks involved comprehensive research focused on contemporary pieces. James Turrell, The Light Inside (1999), Yayoi Kusama, Fireflies on the Water (2002), Olafur Eliasson, The Weather Project (2003), Tomás Saraceno, Flying Garden/Air-Port-City (2005), Anish Kapoor, Shooting into the Corner (2008–2009), Ai Weiwei, Snake Ceiling (2009), Doris Salcedo, Installation (Bogotá, 2002), Zimoun, Rå Hal, Godsbanen, Aarhus, Denmark (2017), Christo and Jeanne-Claude,

L'Arc de Triomphe, Wrapped (2021), Piknik Works, Performative Drawing, British Chapel in Istanbul (2019), Refik Anadol, Gaudí Dreams (2022), Rafael Lozano-Hemmer, Pulse Topology (2021) stood out in this study due to their patterns of space usage (Table 1). Although these artworks encompass a variety of processes and meanings, the primary criterion for their selection was their capacity to challenge conventional art forms and engage with diverse themes and concepts. These works, which employ space as a canvas, are associated with after-theory due to their spatial utilization and emphasis on practice, extending their relevance beyond their classification as contemporary art.

Table 1. *Selected artworks.*

 James Turrell (1999). The Light Inside (Neon and ambient light installation). The Museum of Fine Arts, Houston.	 Anish Kapoor (2008–2009). *Shooting into the Corner* (Installation).	 Christo & Jeanne-Claude. (2021). L'Arc de Triomphe, Wrapped (Environmental installation). Paris, France.
 Yayoi Kusama(2002). *Fireflies on the Water* (Installation, mirrors, plexiglass, lights, and water). Whitney Museum of American Art, New York.	 Ai Weiwei (2009). Snake Ceiling (Installation) (Küçüköner, 2023).	 Piknik Works (2019). *Performative Drawing* (Live drawing performance). British Chapel, Istanbul.
 Olafur Eliasson (2003). *The Weather Project* (Installation). Tate Modern, London.	 Doris Salcedo (2002). *Installation* (Installation). Bogotá, Colombia (Adan, 2010).	 Refik Anadol (2022). *Gaudí Dreams* (Digital artwork). Casa Batlló, Barcelona.
 Tomás Saraceno (2013). *In Orbit* (Installation) Düsseldorf, Germany.	 Zimoun. (2017). *Rå Hal* (Sound installation). Godsbanen, Aarhus, Denmark.	 Rafael Lozano-Hemmer (2021). *Pulse Topology* (Interactive installation).

2. Art and Space through an after-theoretical lens

Osborne (2011, p. 44) seeks to establish a comprehensive framework for defining the concept of after-theory, which plays a significant role in cultural and theoretical discourse. This framework has been further refined in subsequent research (Osborne, 2011, p. 38). To articulate the concept of after-theory, Osborne (2011, p. 44) initiates his analysis by exploring the broad implications of the term "after" within the context of after-theory (Osborne, 2011, p. 38). Moreover, the historical logic presented by "after" must contain an explanation.

Colebrook (2011, p. 91) asserts that the term "after-theory" should not only represent the theoretical situation under consideration but should also be linked to an actual extinction rather than merely declaring the extinction of theory. In this context, it should also encompass elements beyond mere practice, such as culture, body, emotion, opinion, and identities. After-theory compels us to reconsider the value of our thoughts and challenges the logic behind the emphasis on a hypothetical future in theoretical discussions (Colebrook, 2011).

In his article "After Theory" (2003), Eagleton posits that contemporary theoretical frameworks have become antiquated. He highlights intellectuals such as Jacques Lacan, Claude Lévi-Strauss, Louis Althusser, Roland Barthes, Michel Foucault, Raymond Williams, Luce Irigaray, Pierre Bourdieu, Julia Kristeva, Jacques Derrida, Hélène Cixous, Jürgen Habermas, Fredric Jameson, and Edward Said, have produced influential works that no longer resonate with current scholarly discourse. Christopher Hight (2009) further suggests that the decline of theoretical relevance spans multiple disciplines, characterized by a lack of coherent perspectives that transcend merely dismissing psychoanalytic, post-structural, post-colonial, postmodern, or critical "Grand Theory." Notably, the field of architecture has also drawn from these philosophers to establish its theoretical foundations. For example, Derrida has played a pivotal role in the evolution and popularization of Deconstructiv-

ism within architecture. Speaks (2002) critiques the state of theory, asserting its inherent interest while emphasizing the necessity for further refinement. He also observes that a significant transformation in architectural practice took place during the 1980s and 1990s. Docherty (2022, p. 1) asserts that the term "After Theory" should not be construed as a period following a specific theory. Rather, "After Theory" contains discussions that elucidate the challenges associated with postmodernism (Docherty, 2022, p. 1). Engaging with the limits of criticism entails acknowledging the inherent difficulty of achieving consensus regarding the outcomes of the post-theoretical era. Given that postmodernism advocates a discourse that critiques modernism, it is reasonable to contend that "After Theory" addresses these challenges rather than constituting a direct opposition to postmodernism. Furthermore, Docherty (2022) highlights the significance of the concept of framing, indicating that the framing of both theory and art is a fundamental aspect of contemporary art. Docherty (2022) notes that Frank Stella disrupts the established boundaries and structures of this framework, whereas Howard Hodgkin intentionally leaves these boundaries ambiguous. Typically, postmodern art operates outside these confines, presenting an undisciplined nature. It interrogates all forms of framing and promotes the liberation of art from the institutional constraints of museum spaces (Docherty, 2022, p. 32).

This discussion goes beyond more than the mere separation of art from history; it also involves the transformation of both urban and rural spaces into dynamic living museums. Docherty (2022, p. 38) posits that this concept is exemplified by the Pompidou Cultural Centre, designed by Richard Rogers and Renzo Piano. He argues that this structure serves as more than just a repository for art. The square in front, the adjacent streets, and the building's façade collectively invite and encourage artistic possibilities.

Docherty (2022, p. 253) probes the concept of "after theory," asserting that knowledge earns its value when shared and utilized to explore differences rather than merely focusing on the enhancement of individual identity or self-awareness. He argues that, from a political standpoint, this concept is open to debate and evolution. Docherty (2022, p. 253) argues that any critique must go beyond the frameworks proposed by Marxism. In critically analyzing Docherty's perspectives, it is essential to question the validity of existing frameworks, to reassess their limitations, and to consider the space itself as a canvas when exploring the relationship between art and spatial contexts. Furthermore, the selection of locations for art should be reevaluated within the framework of studies on after theory.

Balcı and Uz (2022) provide a critical examination of the vertical hierarchy present in architectural theory, arguing that it contradicts the dynamic and continuously evolving nature of architectural practice. Somol and Whiting (2002) introduce the concept of the Doppler effect as a significant framework for understanding this transformation. Various elements, including material, writing, atmosphere, form, technology, and economy evolve alongside architectural practice. The subjectivity of architectural experience is inherently influenced by the knowledge and historical context of the observer. In the realm of art, the use of space enhances the Doppler effect and raises the pertinent question of whether one should engage with art through observation or textual interpretation. Within this framework, the notion of 'after-theory' becomes important as a means of cultivating practice rather than simply adhering to the inherent meanings of objects. Art emerges as one of the most expansive fields for experimenting with this approach. Staten (2011, p. 283) asserts that art encompasses more than mere artworks, also emphasizing the critical nature of the artistic creation process. He highlights the technological dimensions of art production, which he regards as vital. Staten defines form as a manifestation or indicator of underlying principles, closely connected to the notion of know-how. This connection facilitates the dissemination of knowledge to emerging artists, fostering oppor-

tunities for re-creation. This concept embodies the essence of techné, often referred to as art.

Güler (2016) examines the fundamental characteristics that define space, positing that space is formed not only by the presence of physical objects but also by the absence of them—its void. Space enables the assembly, movement, perception, and observation of objects. Users maintain an acute awareness of the space around them as they navigate through it. In essence, space functions as an extension of the individual, with the human experience as its focal point. The elements that constitute space also dictate the relationship between individuals and their environments. However, contemporary art often neglects the abstract relationship between humans and space, instead incorporating space itself into the artistic production process (Güler, 2016). The concept of placelessness is notable in medieval artistic expression, while the Renaissance emphasized that the world represents an extension of the user's perspective (Güler, 2016). This relationship operates within a cause-and-effect framework (Şeyben, 2009). According to Şeyben (2009), Harvey asserts that this connection underscores the significance of condensing space into a simultaneous moment experienced within universal public time. For instance, the Eiffel Tower serves both as a representation and artistic production, as well as a symbol of Paris. Contemporary art reinterprets the structure as a vibrant living space that facilitates interaction with its ceilings, walls, and floors. This recontextualization fosters the emergence of diverse forms of artistic creation and various approaches to experiencing art. For the object to be visible, it is essential to first establish the space and context. The visual aspect of art is crafted to signify collaboration (Güler, 2016). Space engages with all artistic disciplines, and since the 1960s, it has become an integral aspect of the creative process, fundamentally altering the understanding of the relationship between space and art (Uluçay, 2019).

Artists deliberately design their artworks to align with the specific attributes of the exhibition space. This process involves a thoughtful consideration of the space itself, as well as an interactive approach to its characteristics (Uluçay, 2019). The objective is to cultivate a vibrant environment conducive to the artwork's expression.

In the examination of the relationship between art and space, it is evident that art employs space in diverse and significant ways. Academic studies often focus on specific exhibitions to analyze their treatment of spatial dimensions. For example, Dereci (2014) studies the interaction between multidimensional textiles and the exhibition space in the work titled " Textural Touch." Similarly, Doğan (2016) engaged his students in a project based on fifty paintings featured in Enveroğlu's Asyadolu Exhibition, where the students developed three-dimensional representations of space by tracing lines and textures. Furthermore, Samsun (2017) examines the space in sculpture art from an "a priori" standpoint. He asserts that space is fundamentally "a posteriori" and inherently linked to nature, with the reciprocal relationship between space and form creating an artificial construct (Samsun, 2017).

The concept of "a priori" has evolved beyond its traditional association with nature, now reflecting the complexities of cultural and social human existence. According to Samsun (2017), the spatial dynamics of sculpture can be traced back to the principles of Cubism, which applies external determinations without differentiating between "a posteriori" and "a priori." Samsun asserts that the work of Moore intricately creates space by unfolding it from within. Conversely, Giacometti's sculptures engage with spatial dimensions differently; his approach often results in a distortion of the figure due to perspective. This interplay between form and space in sculpture exhibits both interaction and tension. Özgenç (2011) investigates the relationship between women and space within paintings, highlighting the variability of the permeability of private spaces. Within this framework, the female body is often mechanized by masculine power, thereby creating a dynamic of variable permeability. Şeyben (2009) examines the temporal and spatial dimensions

of visual art, positing that the concepts generated through this interaction are significantly influenced by sociocultural factors. Furthermore, Güler (2016) explores the application of space in performance art, land art, and video art, providing analytical insights based on modern artistic examples. Güler contends that installation art effectively integrates into everyday life, resulting in indistinct spatial boundaries. In contrast, video art encompasses various environments, spatial configurations, and settings (Güler, 2016).

The relationship between the artist and spatial elements is a fundamental aspect of performance art. For example, in his work "Parallel Stress" (1970), Dennis Oppenheim positioned himself in a state of tension between two walls that were constructed near the Brooklyn and Manhattan Bridges (Güler, 2016). In this context, the walls functioned as significant representations of spatial dynamics within the performance. Similarly, land art places a pronounced emphasis on environmental considerations, paralleling the focus observed in performance art.

Olafur Eliasson's "Weather Project" (2003) engenders a distinctive atmospheric experience for its audience. This initiative constructs multiple universes within a singular reality. A spatial examination of the project reveals that the focus is placed on the experiential dimension of the work.

Postmodernism redefines the relationship between the artist and the viewer (Ceber, 2017). Ceber (2017) presents several notable examples that illustrate this dynamic, including Marcel Duchamp's 'Mile of String' (1942), Allan Kaprow's 'Yard' (1961), Daniel Buren's 'Columns' (1986), and Antony Gormley's 'Blind Light' (2007). Each of these works exemplifies the interplay between art and spatial context within the framework of postmodernism, challenging traditional boundaries and inviting active viewer participation.

In "Mile of String," the extensive kilometers of string that traverse the exhibition significantly differentiate the artistic experience. The surface created in Allan Kaprow's "Yard" employs a scattered arrangement of automobile tires as its primary material. In the courtyard of the Palais-Royal, Daniel Buren's black-and-white striped cylindrical columns are arranged in a grid. Antony Gormley creates a fog-like atmosphere by enclosing concentrated water vapor within a single-entry glass structure. This enclosed space immerses the viewer, altering their perception of the environment. All four artworks underscore the importance of the viewer's interaction with physical space and challenge conventional art experiences. Aslan (2019) explains that the concept of "appropriation" offers a new perspective on reproducing existing artworks. Technologically produced works differ significantly in time and spatial context. This perspective allows artworks to take on varied forms, resulting in representations that diverge from their original physical state. This phenomenon may account for the increased prominence of industrially produced art in the twentieth century. Contemporary art, as produced in the twenty-first century, encompasses a diverse array of elements, including space, objects, the observer, and the dimension of time. Artists meticulously select these components to effectively convey particular meanings (Toluyağ, 2020).

Site specificity is a key concept that examines the relationship between a work of art and its physical environment. Kwon (2004, p. 3) notes that since the late 1960s, the focus of site-specific art has predominantly been on phenomenological and experiential dimensions. This art is intentionally created for a specific location, reflecting its deep connection to place. Over time, architectural settings have served as backdrops for artistic expressions, evolving the concept of "place." Moreover, Kwon (2004, p. 3) highlights artists such as Michael Asher, Daniel Buren, Hans Haacke, and Mierle Laderman Ukeles have actively interrogated and challenged conventional notions of site specificity.

The art space has been redefined by numerous artists, including Christian Philipp Müller, Renée Green, Andrea Fraser, and Fred Wilson. Three paradigms—phenomenological/experiential, social/institutional, and discursive—are put forth for site-specific art

in this context.

Kwon (2004, p. 12) argues that site-specific art is influenced by principles derived from physics. In this context, art conceptualizes space not just as an abstract canvas but as a tangible location with its own distinct reality. Essential elements of space include length, depth, height, the shape of walls, the scale of buildings and parks, as well as factors such as lighting and ventilation. Modernism asserts that architecture is concerned with the positioning of structures within particular locations. However, as Kwon (2004, p. 11) notes, the spatial context of art is not a void; rather, it is a concrete and specific environment. Ultimately, the intrinsic relationship between a work of art and its setting necessitates the active presence of the viewer. Through the framework of phenomenology—a philosophical approach that investigates conscious experience and perception—the significance of the lived body underscores art's fundamental reliance on space.

Mark Dion's 1991 project, "On Tropical Nature", serves as a noteworthy example of interdisciplinary artistic practice. Dion employed multiple locations for this project, beginning with the collection of plants, insects, feathers, fungi, and various objects from the rainforest along the Orinoco River (Kwon,2004, p. 26). The second location was the Sala Mendoza in Caracas, where Dion created contextual installations that contributed to the project's overall narrative. The third element involved a curatorial framework that contextualized the installations. Ultimately, Dion sought to establish a permanent relationship with tropical nature, integrating himself into the ecological environment. This project demonstrates how artists construct their own theoretical frameworks and engage actively in discourse. The intertextual structure of the space provides a comprehensive understanding of the artwork. Kwon (2004, p. 75) cites Richard Serra's (1980) "Tilted Arc" project as an illustration of site-specific art that presents a contrasting dilemma. In this case, the incongruities within the space are perceived as a form of authenticity, and the "Tilted Arc" project exemplifies the discomfort surrounding the intersection of art and architecture within public spaces.

According to Kwon (2004), Serra's works, despite the prevailing physical and socio-political conditions of a given space, manifest as a distinct form of art and language. In her book, Art and Architecture: A Place In-Between, Rendell (2007) seeks to classify the interaction between space and art. She introduces the concept of Ruin as an allegory informed by the ideas of Walter Benjamin. Within this allegorical framework, art and space isolate and recombine elements to generate new meanings, representing history as a form of ruin. Rendell (2007) highlights the works of Jane and Louise Wilson, specifically "Stasi City" and "Gamma City," exhibited at the Serpentine Gallery in 2000, as exemplary manifestations of this phenomenon. These media installations comprise sequential images and scenes, facilitating a spatial experience for the viewer. According to Rendell, the spaces created in such projects are intended not only for the observation of architectural objects but also for evoking memories and visualizing the surrounding space. She underscores the significance of the experiential aspect of this integration (Rendell, 2007, p. 98). The baroque form of allegory creates melancholy in the viewer. In this mode, there is contemplation rather than reflection, concentration rather than action, and fragment as a ruin on disintegration and transition.

The second mode defined by Rendell in the intersection of art and space is "Insertion as Montage." She identifies Duchamp's act of placing an everyday object in a gallery as the first example of this approach (Rendell, 2007, p. 103).

An exemplary illustration of innovative spatial design is the folies created by Bernard Tschumi for Parc de la Villette. In his publication *Architecture and Disjunction* (1996), Tschumi articulates the design strategies employed in this park, characterizing it as a source of pleasure derived from elements of madness and excess. The principle of layering is markedly evident in this design. The montage referenced by

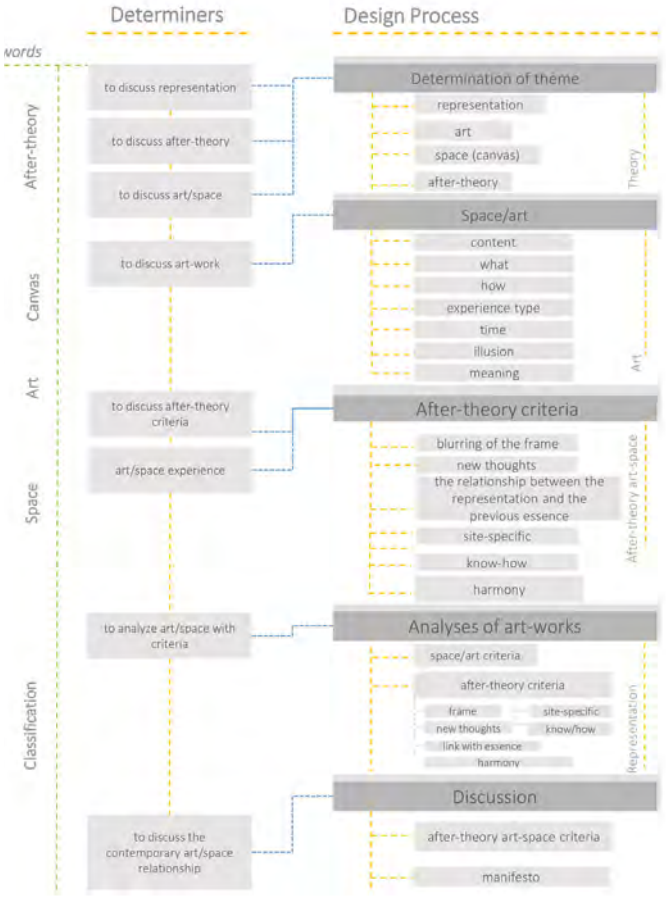


Figure 1. *Research method flowchart.*

Elinor Rendell serves as a straightforward juxtaposition that elicits a momentary shock, thereby highlighting the impact of unexpected combinations. In her 2007 work, Rendell introduces an additional mode titled "what is now," which emphasizes projects that explore innovative concepts while critiquing historical constructions in contemporary contexts. She cites Sapphire Calle's "Appointment with Sigmund Freud" (1999) as a pertinent example of this mode. Calle's work integrates significant personal artifacts belonging to Freud into the spatial environment, drawing inspiration from his writings.

A review of the literature indicates that the content of artistic works is influenced not only by the artists' personal experiences but also by various elements including time, illusion, and meaning. The adoption of an after-theory framework has led to a transformation of traditional artistic structures, thereby facilitating the emergence of innovative concepts (Docherty, 2022). The literature identifies several key variables, which include representation and essence (Docherty, 2022), site-specificity (Kwon, 2024), know-how (Staten, 2011), as well as harmony and disharmony (Kwon, 2004).

3. Material method

This research aims to explore the relationship between art and space through the lens of after-theory. A key objective is to foster a dialogue on representation and the interplay between art and space within after-theory. The study is organized into five sections. The initial section of the literature review explores the definition of a work of art, the connection between art and space, and the characteristics pertinent to representation and after-theory studies. A thorough definition of a work of art, about both art and space, requires an analysis of its content, form, experience, temporality, illusion, and meaning. The criteria for assessing works of art and their interactions with space from an after-theoretical perspective include the blurring of frames, the introduction of new thoughts, and an analytical review of representation with its prior essence. It also examines site specificity, know-how, and the dynamics of harmony and disharmony. The research examines twelve artists, and their works produced between 1999 and 2023 as illustrative examples. Figure 1 provides a flowchart detailing the research methodology employed in this study.

4. Analysis of artworks

4.1. The Light Inside, James Turrell, 1999

"The Light Inside," a notable work by James Turrell, was exhibited in 1999. In this installation, Turrell combines light and space to create a distinctive visual perception, forging essential connections between the two elements. As noted by Adcock (1990), Turrell has consistently pursued direct perceptual environments informed by experimental psychology since the early phases of his career. Ertung (2022) asserts that in these installations, viewers are enveloped in an atmosphere devoid of visual cues or indicators. There are no signs or objects within the illuminated atmosphere that serve as definitive reference

points for individuals' positioning. The manipulation of light can obscure the perception of boundaries, making it difficult for viewers to discern their direction. Although individuals may be in motion, they can feel uncertain regarding their orientation. Consequently, spatial relations and distances shift from being understood as connections between specific points in objective space to being defined by the viewer's bodily focal perspective. This shift underscores the experiential nature of spatial awareness in Turrell's installations.

Turrell uses pure light. The Houston Museum of Fine Arts installed Turrell's work in the underground tunnel connecting the Caroline Wiess Law Building and the Audrey Jones Beck Building. The composition is made up of neon and ambient light. It generates content by integrating light and space. Time is the overall perception of spatial existence for the observer. Turrell creates an illusion by shaping space with light. When the artwork is viewed from an after-theoretical perspective, the frame is blurred. The transformation of light and space into installation art has fostered new forms of cognition and perception. The relationship between representation and essence is interconnected. Although the boundaries of space are defined by light, its essential limits remain unchanged, while its sensory properties shift. This artwork is a site-specific design. A harmonious relationship exists between the space and the artwork. There is no disharmony in its relationship with space.

4.2. Fireflies on the Water, Yayoi Kusama, 2002

"Fireflies on the Water" is an installation designed for individual viewing, allowing only one person at a time to engage with the artwork. The installation consists of a compact enclosure with mirrored walls and features a central pool of water. A dock-like platform extends into the pool, while 150 miniature lights are suspended from the ceiling. These components effectively generate both direct and reflected light from the mirrors and the water's surface, contributing to an environment that appears boundless, lacking discernible upper or lower limits, beginnings, or ends. The focus of this work lies in the interplay of water and light, with an emphasis on repetition. The installation is engineered to immerse the viewer completely, capitalizing on the reflective properties of both mirrors and water. The perception of time in this context distinguishes it from the passive observation typical of traditional painting.

Kıran (2013) suggests that Yayoi Kusama's lifelong engagement with various disciplines and her ability to create impactful works may be linked to her "obsessive-compulsive" condition. This distinctive repetition serves as a defining feature of her artistic practice. The repetition of her creations enhances their appeal and infuses them with a playful character. In "Fireflies in the Water," as in her other works, this playful repetition plays a key role in generating meaning. From an after-theoretical perspective, the artwork unfolds through multiple layers of interpretation. Although the framework lacks precise delineation, the space functions as a canvas, constructing its own parameters. This piece presents new avenues for exploring the relationship between space and art by utilizing optical illusions. It is context-specific; thus, the same artwork, when placed in a different environment, would manifest uniquely following the characteristics of that space. The representation retains traces of its original essence. This work establishes a knowledge base that diverges from conventional techniques and aligns with its surrounding environment.

4.3. The Weather Project, Olafur Eliasson, 2003

Olafur Eliasson emphasizes the critical role of audience participation in art. He articulates a connection between artworks and their functions (Bukdahl, 2015), thereby facilitating a dual emergence of both the audience experience and the artwork itself. In his design process, Eliasson prioritizes intuition before conceptual development; this initial intuition is

subsequently restated into drawings and models. He creates fabricated environments, where the experiential quality of a space is determined by its atmosphere. For example, the atmosphere of a restaurant or theater shapes the interactions between human perception and spatial contexts. The atmosphere also encapsulates elements of history, reflecting lifestyle, politics, attire, and relationships. Aesthetic concepts such as phenomenology and ontology exert a profound influence on the built environment. Throughout the creation and experience of the artwork, there is a connection between the environment in general (subject and subjective) and (product and production) (Böhme, 2014).

Atmospheric perception encompasses the essence that affects space, the person, and light, creating an experience. Architecture represents itself through the production of art. Olafur Eliasson (2003) constructed a sunset by placing a representation of the sun in his "Weather Project." The viewer can lie down, walk, or sit while experiencing this atmosphere. The space depicts the sunset together with various human behaviors. The composition of Olafur Eliasson's artwork blends space and experience. His expertise spans photography, painting, architecture, and model-making, and his designs are grounded in nature and science, creating a realistic effect. When examining the temporal dimension of the artwork, its creation and experience involve interaction and contrasts.

Atmospheric perception incorporates the entire space, the individual, and the substance influence light. As an atmosphere-generated sensation, it is a process of the atmosphere.

Olafur Eliasson's artwork creates an illusion of atmosphere that doesn't authentically exist in public spaces. The environment and resulting experience are key to understanding and interpreting his work. From an after-theoretical perspective, the foundational framework of this work remains consistent. The sun serves as a medium, with the space as its canvas. This installation alters the atmosphere by distinguishing between representation and essence. The two suns within the interior symbolize the synthesis of this essence. Notably, the artwork is not site-specific and can be replicated in various locations. Although know/how is well-established, it does not embody a techne. The artwork does not seek harmony with the spatial context in which it is placed.

4.4. In Orbit, Tomás Saraceno 2013

"In Orbit" is one of Tomas Saraceno's large-scale permanent installations, exhibited in the atrium of the Ständehaus Museum of Modern Art K21 in Düsseldorf, Germany, in 2013. Saraceno studied the complex life patterns and methodologies that inspire the intricate webs created by spiders, working under the supervision of arachnologists. His artistic practice is heavily influenced by the behavior of spiders and their relationships with their webs. The museum allows visitors to engage directly with the artwork by physically interacting with the web. Suspended in the air, "In Orbit" consists of a network of large floating spheres—air-filled PVC balls up to 8.5 meters in diameter. They cover 2,500 square meters beneath the building's glass dome, above the museum's three-story square. According to Kıral and Paç (2022), Saraceno's "In Orbit" represents a dynamic and expansive communication network. It offers users not only a visual experience but also a tactile one. The artwork integrates with the user's experience, creating an illusion that allows them to feel the way spiders move. The space is designed with varied heights, encouraging new ways of thinking in this context. The representation in "In Orbit" deviates from previous perceptions, as it transforms spider webs into areas that users can walk on. This work is not site-specific; rather, it utilizes the space as a three-dimensional canvas. It does not aim to achieve harmony with its surroundings, nor does it introduce new know-how.

4.5. Shooting into the Corner, Anish Kapoor, 2008-2009

"Shooting into the Corner" is conceived by strategically positioning a cannon, developed by Kapoor and a team of engineers, to face the corner

of a museum space. A pneumatic compressor propels 11 kilograms of wax cannons to the opposite corner of the room. This installation evolves into a performance that channels self-expression through materiality. The resultant spontaneous image represents an artistic action executed without direct intervention from the artist. In this endeavor, Kapoor encourages the audience to transcend personal expression and establish a meaningful connection with the artwork (Ateş et al., 2020). In his analysis, Buhe (2011) examines the experience of waiting as it relates to this artwork. He contends that the piece transforms the discomfort of anticipation into a compelling sense of lost control. Kapoor's work prompts individuals to recognize their anxiety in awaiting the conditions surrounding the object. Buhe (2011) asserts that this collective act of waiting manifests a distinctive experience, characterized by temporal anticipation that lies at the core of the artwork. The emphasis is placed on the viewer's experience. The red paint markings, evocative of blood on the white wall, create an illusion that shifts the work's interpretation from themes of war to concepts of death. When viewed through the framework of after-theory, the boundaries of the frame are altered without being obliterated. The mechanical system delineates these boundaries through the application of red color. This artwork stimulates new avenues of thought while preserving its inherent essence. The mechanical system is site-specific and possesses the capability to be reconstructed in various settings. It has not contributed to the formation of technical knowledge or evolved into a recognized form of techne; rather, it integrates seamlessly with the surrounding space.

4.6. Snake Ceiling, Ai Weiwei, 2009

Ai Weiwei developed the artwork titled "Snake Ceiling" to commemorate the tragic loss of over 5,000 children during the 2008 earthquake in Sichuan Province, China. This installation is composed of children's backpacks. Initially presented in San Francisco in 2008, "Snake Ceiling" featured an arrangement of 360 backpacks and has since been re-exhibited in various forms and locations. Ai Weiwei is recognized for utilizing materials that are directly relevant to the themes he investigates in his artworks (Küçüköner, 2023).

"Snake Ceiling" is a transformative artwork whose serpentine configuration, suspended from the ceiling, captivates viewers. Though primarily visual, the artwork transforms the space into a platform for social awareness. From an "after theory" perspective, the conceptual framework of this artwork is notably distinct. The know-how pertains specifically to the piece, while the backpacks' provocative message—highlighting responsibility for the children's deaths—invites critical reflection. The interplay between the artwork and its environment is dynamic, fostering either harmony or disharmony. The representation and original essence change as the school backpacks are transformed into a serpent-like form hanging from the ceiling, a powerful symbol of the artist's intention

4.7. Installation, Bogotá, Doris Salcedo, 2002

The artistic perspectives and works of Beatriz González, Joseph Beuys, and Marcel Duchamp have profoundly influenced the oeuvre of Doris Salcedo. Salcedo integrates references to the violence in Colombia found in González's works, the social sculpture concepts of Beuys, and Duchamp's utilization of readily available objects (Sağlam, 2020). As an alternative artistic manifesto, Doris Salcedo conceptualizes the fusion of art and space, offering audiences a transformative experience. She frequently employs space as a boundary, and in her examination of the radical aesthetics and global context within Salcedo's work, Adan (2010) argues that her creations provoke an indelible and often incomprehensible sensation, particularly about the losses highlighted by social disparities and the resultant absence. Salcedo effectively transforms mundane objects, such as chairs, into significant architectural and artistic representations. The site-specific installations she creates represent one of the most distinctive features of her artistry. In these installations,

Salcedo utilizes the facade of buildings and chairs as her primary materials, facilitating a visual and ephemeral experience where the meaning is inherently multifaceted. From an after-theoretical perspective, the underlying framework of her works becomes apparent. The surface of the building serves as a foundational element for her artistic expressions, while everyday objects are reconstituted as artworks, with the facade functioning as a canvas. The representation is different from the previous essence. No specific technical knowledge is created. The disharmony of the artwork with the space heightens the tension between the intended location and the constructed context, shaping the discourse of the artwork.

4.8. Zimoun, Rå Hal, Godsbanen, Arhus, Denmark, 2017

Zimoun is well-regarded for his site-specific installation art, which predominantly incorporates recycled materials. He skillfully employs mechanical principles such as rotation and oscillation to activate these materials to generate sound. His installations frequently feature commonplace items, including cardboard, DC motors, cables, welding wire, wooden poles, and fans. In 2017, Zimoun's work was critically analyzed at Godsbanen in Aarhus, Denmark, where he sought to reinterpret the concept of wall art. The installation comprises DC motors, cardboard boxes, and aluminum ropes. As an installation art piece, it establishes a contextual relationship with its surrounding space. Zimoun has succeeded in creating a dynamic architectural element that not only exhibits movement but also produces sound. In this framework, the space transcends the role of a mere canvas; it becomes an essence of the artwork, enhancing the viewer's auditory experience. The delineation between the artwork and the space is both disrupted and redefined, facilitating the exploration of new ideas through the interplay of sound and movement. Know/how shows itself and becomes Zimoun's artistic signature, where there is no intention of seeking harmony or disharmony with the environment.

4.9. Wrapped, L'Arc de Triomphe, Christo and Jeanne-Claude, 2021

L'Arc de Triomphe, Wrapped, was conceptualized in 1961 and was publicly exhibited for 16 days in 2021. The structure was enveloped in 25,000 square meters of recyclable polypropylene fabric in a silvery blue hue, complemented by 3,000 meters of red rope. This installation underscores the visual experience of the viewer, effectively transforming an urban space and a city gateway into an art form. It seamlessly integrates art into the urban environment, positioning the viewer not merely as a spectator but as an active participant within the city. The original form of the arch remains intact; however, the wrapping enhances its structure, creating a three-dimensional canvas effect. The representation is formally related to the previous essence. No specific know/how is formed. There is a clear harmony between the space and the artwork.

4.10. Piknik Works, performative drawing, British Chapel in İstanbul, 2019

Piknik Works is a performance art group based in Istanbul, established in 2017 by Atıl Aggündüz and Oğul Öztunç. The group employs space as a canvas to convey narratives through performative drawing. In his master's thesis titled "Canvas-space as a Medium of Reconciliation," Aggündüz (2020) emphasizes the reconciling potential of spatial environments. Piknik Works seeks to navigate the intersection of art, architecture, and graphics, drawing inspiration from the Creative Mechanics of the 21st Century. A notable endeavor involved continuous drawing for 72 hours, aimed at exploring the interrelations among drawing, the human body, and spatiality. This experiment took place in a chapel located within the Swedish Consulate on İstiklal Street in Istanbul, presenting a contrasting setting for artistic exploration. Throughout three days, the artists occupied this space, concentrating on drawing across the walls, ceiling, and floor. An examination of the resulting works reveals elements akin to traditional

drawing techniques. While the artists engaged in the act of drawing, the audience concurrently experienced the environment, contributing to the coalescence of artwork. The illusion resides in the narrative depicted on the walls of the space. From the standpoint of After Theory, the frame is not merely disrupted but extended into the spatial context, facilitating new considerations and representations. The drawings produced are not site-specific, nor has distinct know-how been established; rather, a pursuit of harmony with the space has not been prioritized.

4.11. Gaudi Dreams, Refik Anadol, 2022

Refik Anadol serves as an instructor in Design Media at LCLA and is an expert in audiovisual performance. His artistic methodology employs architecture as a canvas for the creation of spatial atmospheres derived from data. Anadol transforms both the visual and auditory characteristics of a space in response to user interactions, resulting in a dynamic surface that is perpetually in motion. In this context, data exists as a living entity, continuously flowing, while architecture functions as the foundational canvas for his artistic endeavors. In Anadol's works, the conventional two-dimensional cinematic representation of reality is redefined into a three-dimensional experience within the anti-world. The data environment acts as the source of illusion, and technology plays an essential role in this transformative process. A significant public exhibition occurred at Rockefeller Plaza in Manhattan, New York, where, on May 7, 2022, Anadol and his team projected a mapped interpretation of their work onto the facade of Casa Batlló, engaging an audience of approximately 50,000 participants (URL 9). In this project, Anadol utilized Gaudí's architectural masterpiece, Casa Batlló, as the canvas. The exhibition's content primarily revolves around data, extending the immersive experience into the urban environment. The illusion is characterized by a dynamic and fluid form that is projected onto the building's facade. From the perspective of After Theory, the framing within Anadol's work delineates the boundaries of the building, facilitating a transformation into a new form. A fundamental aspect of this work is its ability to produce new knowledge—referred to as know-how—that can be utilized by other artists within the discipline. Although the representation may exhibit variations from its original essence, traces of that essence are still discernible within the artwork. Additionally, the work is site-specific and exhibits harmony with its environment.

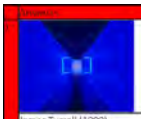
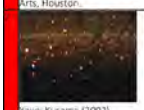
4.12. Pulse Topology, Rafael Lozano-Hemmer, 2021

The Pulse Topology installation transcends the concept of a static display, functioning instead as an interactive experience space. The arrangement of various light bulbs at different heights creates a topography of peaks and valleys, actively inviting the audience to explore the environment. Each light bulb pulsates in response to the heartbeat of distinct participants, incorporating their interactions into the artwork. The installation utilizes specially designed pulse sensors to capture the heartbeats of visitors. As new participants join, their pulse data is integrated into the recordings, replacing the oldest entry. This dynamic process ensures that each participant's heartbeat contributes meaningfully to the installation, enhancing the overall experience. From an After-theory perspective, the framing of the artwork becomes apparent, and the space itself integrates with the experience, resembling a three-dimensional canvas. The artworks generate a unique form of techne that fosters new thoughts. While the representation remains related to its prior essence, it is ultimately independent. This development has resulted in specialized know-how within the art sector, establishing a harmonious relationship with the exhibition space.

5. Discussion

This study analyzes the relationship between art and space, focusing on the transformations observed through the analysis of twelve artworks created between 1999 and 2023. The

Table 2. *Analysis of the artworks.*

 James Turrell (1999). The Light Inside (Neon and ambient light installation). The Museum of Fine Arts, Houston.	Content- space and light What- installation How-technic Experience- walking Time factor-time zone Illusion-pure lights Meaning -pure experience	Frame-space New thoughts Essence-similar Site-specificity-yes Know-how-specific Harmony-yes	 Doris Salcedo (2002) Installation (installation). Bogotá, Colombia (Adam, 2010)	Content-building facade, chairs What-installation How-technic Experience-no Time factor-moment Illusion-daily furniture in the wrong place Meaning-contrast	Frame-façade New thoughts-yes Essence-no Site-specificity-yes Know-how-specific Harmony-no
 Yayoi Kusama (2002). Fireflies on the Water (Installation, mirrors, plexiglass, lights, and water). Whitney Museum of American Art, New York.	Content-light, water, mirror What- installation How-water and Experience-singular Time factor- time zone Illusion-articulation Meaning -diversify	Frame-space New thoughts Essence-not linked Site-specificity-yes Know-how-specific Harmony-yes	 Zimoun, (2017). Rå Hal (Sound installation). Godsbanen, Aarhus, Denmark.	Content-wall, sound What-installation How technical Experience Time factor-time zone Illusion-sound Meaning	Frame-no New thoughts-yes Essence-yes Site-specificity-no Know-how-yes Harmony-no
 Olafur Eliasson (2003). The Weather Project (Installation). Tate Modern, London.	Content-sun What-installation How lying, standing Experience Time factor- time zone Illusion-urban effect Meaning-sunset	Frame-space New thoughts Essence-not linked Site-specificity-no Know-how-specific Harmony-no	 Christo and Jeanne-Claude (2021). L'Arc de Triomphe, Wrapped (Environmental installation). Paris, France.	Content-gate wrapped What-Installation How wrapped Experience-no Time factor-moment Illusion-wrapped Meaning	Frame-yes New thoughts-yes Essence-yes Site-specificity-yes Know-how-specific Harmony-no
 Tomás Saraceno (2013). In Orbit (Installation) Düsseldorf, Germany.	Content-webs What-installation How-touching Experience Time factor- time zone Illusion-web like Meaning animals	Frame-space New thoughts Essence-yes Site-specificity-no Know-how-specific Harmony-no	 Piknik works (2019). Performative Drawing (Live drawing performance) British Chapel, Istanbul.	Content-painting What-performative art How-performance Experience Time factor-time zone Illusion-novelty Meaning	Frame-yes New thoughts-yes Essence-yes Site-specificity-yes Know-how-no Harmony-yes
 Anish Kapoor (2008–2009). Shooting into the Corner (Installation).	Content-wax and space What-installation, sound How technical Experience Time factor- time zone Illusion-blood like environment Meaning war	Frame-space New thoughts Essence-linked Site-specificity-yes Know-how-specific Harmony-no	 Refik Anadol (2022). Gaudí Dreams (Digital artwork). Casa Batlló, Barcelona.	Content-data, building What-digital art How technical Experience Time factor-time zone Illusion fluidity Meaning	Frame-yes New thoughts-yes Essence-yes Site-specificity-yes Know-how-yes Harmony-no
 Ai Weiwei (2009) Snake Ceiling (Installation) (Koçyıkönar, 2023).	Content-bags What-installation How designing Experience Time factor- time zone Illusion-memory Meaning earthquake	Frame-space New thoughts Essence-not linked Site-specificity-no Know-how-specific Harmony-no	 Rafael Lozano-Hemmer (2021). Pulse Topology (Interactive installation).	Content-lights What-installation How Experience Time factor-time zone Illusion Meaning	Frame-yes New thoughts-yes Essence-yes Site-specificity-yes Know-how-yes Harmony-no

analysis is grounded in an after-theory framework. An evaluation of these artworks reveals that the artists employed a variety of methods in their creative processes. Works such as "The Light Inside," "Fireflies on the Water," "The Weather Project," and "Pulse Topology" effectively utilize light as a medium. Conversely, "Shooting into the Corner," "Pulse Topology," and Zimoun's installation emphasize the integral role of sound. The experience of space is paramount across all selected artworks, with a particular focus on movement within that context. In "The Weather Project," audience interaction with the atmosphere is facilitated through diverse activities, including sitting and lying down. In contrast, "Shooting into the Corner" places greater emphasis on audience expectations related to their engagement with the artwork. In "Pulse Topology," the heartbeat is incorporated as a vital aspect of the artistic experience. This analysis is confined to the consideration of physical space, and all selected artworks promote the generation of new thoughts. "Snake Ceiling," however, addresses themes of memory concerning earthquakes and childhood, offering a profound artistic interpretation. Representation is linked to prior essence. Significant know/how was developed through the execution of "The Light Inside," "Gaudi Dreams," and "Pulse Topology." Table 2 provides a comprehensive analysis of these artworks.

6. Conclusion

The diminishing significance of architectural theory, along with the emergence of existential dimensions within practice, has resulted in transformations in the relationship between art and space. The evolving potential of contemporary art, the disintegration of established norms, and the advent of innovative concepts and environments are all associated with the notion of "after theory," which prioritizes practical application. This after-theory approach facilitates the development of concepts related to new thoughts and contextual connections.

The reconstruction of reality introduces the idea of expanding the horizons of art. The artworks under examination utilize space as a critical component and cannot exist independently. In this regard, after-theory permits a reevaluation of the potential of both art and space as manifested through these artworks. Furthermore, after-theory encompasses not only theoretical discourse but also practical implementation, necessitating that artists and researchers consider the significance of their ideas. The identification of challenges within the fields of art and architecture reveals new opportunities without aiming to counter-postmodernism. To eliminate boundaries effectively, it is imperative to first reflect on the notions of place and framework. The selection of space and the transformative impact of art contribute to a diversification in the relationship between art and space, both formally and contextually.

To ascertain the essence of a work of art, it is imperative to evaluate various components, including content, the nature of the experience, temporal factors, illusion, and meaning. This research posits the importance of analyzing artworks from an "after theory" perspective, which involves the examination of six essential criteria: frame, new thoughts, the relationship of representation to prior essence, site-specificity, know-how, and the degree of harmony or disharmony with the surrounding space.

Upon reviewing the selected works, it becomes evident that architectural representations situated at the intersection of art and space encompass a range of elements, such as spatial configuration, user interaction, experiential factors, and data influences. The artistic production process is contingent upon the artist's experiences before, during, and after the creation of the artwork; similarly, this process applies to the viewer or individual engaging with the art object. Therefore, the concept of experience is accentuated in the context of after-theory. It is important to note that architectural representations can be inherently misleading. The origins of illusion can be traced to the interaction between reality and unreality, which is further influenced by mass production, the careful balance of elements, the construction of artificial atmospheres, and the emergence of data sculptures. An emphasis on life and spatiality illuminates the deeper meanings within these works.

In this context, the artworks highlight the experience of space. The space functions as a three-dimensional canvas, altering the conventional meaning of the frame. The contextual and technical details, along with the material selections in the artworks studied, facilitate the emergence of new concepts. While the artistic representations are contextually and formally related to their prior essences, they have manifested in a novel manner. Although site-specificity is not designated as a criterion in the examined works, the boundaries of the artwork are delineated by the spatial configuration. Refik Anadol has developed a know/how that may be employed by other artists. Currently, there exists no definitive data regarding the harmony or disharmony of these artworks with their respective environments. This study is posited to offer classification criteria for research that investigates the relationship between space and art.

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Between lines and land

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Abstract
This study engages with the evolving discourse of the post-theoretical paradigm and its implications for landscape architecture in Turkey. The research explores landscape architecture's shift to a post-theoretical stance, focusing on responsive solutions to societal and environmental challenges. The National Landscape Architecture Awards in Turkey, organized by the Turkish Chamber of Landscape Architects, play a pivotal role in this investigation. These awards, while reflecting the theoretical and practical evolution of landscape architecture, also act as barometers for the discipline's alignment with post-theoretical thought and its departure from traditional high theory. The research design uses a cyclical hermeneutic reading, where data collection, analysis, and interpretation continuously interact. Data was collected through a retrospective archive searches of Landscape Architecture Awards reports since 2009. Discourse analysis revealed the profession's post-theoretical status, reinterpreted hermeneutically and coded descriptively. Through this descriptive coding, the study identifies and interprets recurring themes, relationships, and concepts embedded within the award narratives, providing insights into the ever-blurring boundaries between theory and practice. The research underscores the significance of hermeneutics in deciphering the intricate dynamics shaping landscape architecture, especially in a post-theoretical age characterized by fluidity between theoretical constructs and practical implementations. Ultimately, by exploring the nuanced interplay between theory, practice, and context, this study offers a fresh perspective on landscape architecture's trajectory in Turkey, illuminating its adaptive and responsive nature in a rapidly changing world.

Keywords
Hermeneutics, Landscape architecture awards, Landscape architecture theory, Post theory, Theory and practice.

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1. Introduction

In the 21st century, design evolves with a rapidly changing world, challenging traditional top-down, theory-based models. The dynamic interaction between natural and artificial environments in landscape architecture transcends theoretical frameworks to address practical, context-specific realities. Practice-oriented theory develops from this synergy, offering new perspectives on environmental interactions. "Post-theory" responds to traditional theory's limitations, advocating for pragmatic, adaptable, and context-sensitive approaches (Eagleton, 2004; Lyotard, 1979). Historically, landscape architecture emerged from Renaissance roots, viewing nature as a machine, which proved inadequate. Modern ecological awareness, sparked by Rachel Carson and Ian McHarg, transformed the discipline, making it responsive to social and ecological needs.

In Turkey, although the profession of landscape architecture has developed relatively recent, it has embraced the integration of Eastern and Western cultural influences in connection with the country's unique landscapes. Anatolia's dynamic human-environment relationship stems from its rich geography and cultural diversity. Education began in 1933 at Ankara Higher Agricultural Institute, with the Department of Landscape Architecture established in 1968. The profession was officially recognized in 1996 with the establishment of the TMMOB Chamber of Landscape Architects (TMMOBPMO), creating a socio-political framework for professional standards (TMMOBPMO, 2009).

The research examines the evolution of landscape architecture in Turkey, influenced by local dynamics, as reflected in the National Landscape Architecture Awards organized by the Turkish Chamber of Landscape Architects (TMMOBPMO, 2009). These awards enhance the prestige of the profession, highlight the interplay between design and real-world problems, and showcase the cyclical relationship between theory and practice. The study aims to understand the post-theoretical development of landscape architecture in Turkey by focusing on the last 15 years. It explores how the profession has evolved in response to changing local and global dynamics, using a hermeneutic approach to reinterpret theoretical concepts within their historical, cultural and linguistic contexts.

The article is structured in two main chapters. In the first chapter, the evolution of the theoretical background of landscape architecture is examined in a post-theoretical manner. The second chapter focuses on the National Landscape Architecture Awards in Turkey and analyzes them through a hermeneutic reading to understand how these awards reflect post-theoretical thought. The impact of the awards on the selected projects and their compatibility with post-theoretical approaches are discussed. The analysis of the National Landscape Architecture Awards aims to fill the knowledge gap in the literature regarding these awards and the development of landscape architecture in Turkey. The research contributes to international literature by offering a new perspective on landscape architecture studies in Turkey.

2. The changing relation between theory and practice: Post-theory

Jean-François Lyotard (1979) argues in his book "The Postmodern Condition" that traditional grand narratives have lost their credibility in contemporary society, which is fragmented and pluralistic. Lyotard (1979) suggests embracing skepticism towards totalizing explanations and recognizing the plurality of smaller narratives and local contexts. His critique of metanarratives paved the way for questioning universal claims of theoretical frameworks.

Terry Eagleton's "After Theory" (2004) presents a new perspective on the relationship between theory and practice, emphasizing the need for an approach that addresses different cultures and contemporary issues, diverging from the top-down approach of high theory. Eagleton associates the end of theory discussions with postmodern thought and the development of new approaches in the post-colonial era. Balcı and Uz (2022) note that post-theory topics in academia relate directly

to everyday life and the production of academic knowledge, distinct from political agendas. Eagleton (2004) articulates that the normative structure of language tends to homogenize the richness and diversity inherent in existence and phenomena. He warns that eliminating dogmatism is challenging, as cultures constantly transform in a changing world. Turnbull (2003) states that post-Derridean philosophy revitalized the aporetic self-examination of theory, appealing to contemporary intellectual sensibilities.

Stanley Fish (1985) describes the situation as generating both the "fear of theory" and the "hope of theory." Eagleton (2004) cautions against assuming that culture can continually reshape itself while nature remains constant, highlighting the postmodernists' critique of those who naturalize social or cultural phenomena.

The post-theory approach has redefined the relationship between theory and philosophy, impacting various disciplines. "Post-Theory: New Directions in Criticism," edited by McQuillan et. Al. (1999), influenced literary criticism and theory by advocating interdisciplinary and innovative approaches. This work encouraged the exploration of diverse perspectives and methodologies, reshaping academic discussions and professional approaches in literary studies.

In "Post-Theory: Reconstructing Film Studies" David Bordwell and Noel Carroll (1996) challenge prevailing film studies practices, seeking a unified theory to explain cinema since the 1970s. Post-theoretical studies have also influenced architectural and urban design theories. The postmodern architecture movement emerged as an opposition to modernist ideals, aiming to diversify architectural expression, reflect local cultural elements, and enrich spatial experience (Jencks, 2002).

> "Practices were techniques, relationships, intelligences, and tendencies that shaped design; abstract entities that added value and ultimately distinguished one firm from another." (Speaks, 2002).

Balcı and Uz (2022) extend this view by arguing that post-theory abolishes the vertical hierarchy of theory over practice. According to Balcı and Uz (2022) architecture reflects an agency within ever-changing organizational patterns, rather than a centrally directed shaping conciousness.

The transition from theory to post-theory in architecture represents signifies a pivotal shift from perceiving architecture as an autonomous discipline to adopting a more pragmatic and context-riven approach. Autonomy in architecture is characterized by a focus on the discipline's internal logic and principles, but with neo-pragmatism, challenges this notion by advocating for architecture that responds to external factors such as social needs, environmental concerns, and cultural contexts (Şahin & Kömez Dağlıoğlu, 2023). Neo-pragmatism in architecture emphasizes practical, real-world solutions and the impact of architectural design on its users and the broader community. It promotes a more inclusive and flexible approach, considering diverse perspectives and the interconnectedness of various factors influencing architectural practice. (Şahin & Kömez Dağlıoğlu, 2023).

In the book "Theory After Theory," published by Jane Elliot and Derek Attridge (2011), it is argued that theory is far from dead but has undergone significant changes to engage with the most pressing cultural and political issues of our time. The book covers articles on biopolitics, bioethics, neoliberalism, and aesthetics, while still maintaining a relationship beyond post-structuralism. In an environment where changes in practical life are happening so rapidly, theory has transformed into an interpretive tool that delves into the reasons for the evolution of practices, their forms, and the relationships between them (Elliot & Attridge, 2011). Although the existence of a theory separate from practice is no longer valid, it is a fact that practice requires the support of theory to understand, interpret, and predict its own processes.

3. Landscape architecture theory in theory(less)ness / or / landscape architecture theory as an after-theory?

In the 17th century, Western landscape architecture emerged with a reductionist view of nature, influenced by Descartes, treating it as a machine

for human use, which later proved inadequate for environmental issues (Erbaş Gürler, 2012). In response to the Industrial Revolution's unhealthy cities, England developed green recreational areas, giving rise to the "Landscape Garden," countering French formal gardens. In the U.S., Frederick Law Olmsted's Parks Movement integrated rural and urban areas. These developments transitioned from private garden designs to public spaces, solidifying landscape architecture as a profession by the late 19th century (Erbaş Gürler, 2012).

Garrett Eckbo's (1950) "Landscape for Living" shifted from pre-war private gardens to social, human-centered designs (Erbaş Gürler, 2012). By the mid-20th century, Rachel Carson's (1962) "Silent Spring" and Apollo 8's 1968 Earth images highlighted ecological fragility, fostering ecological consciousness. Ian McHarg's (1969) "Design with Nature" promoted ecological design principles in professional practice (Spirn, 1998).

By the late 1980s, the focus in landscape architecture had shifted to environmental issues, with a 1990s emphasis on traditional, local characteristics, and ecological balance. Amos Rapaport's (1990) "History and Precedent in Environmental Design" linked historical insights to new urban design theories (Rapaport, 1990; via Erbaş Gürler, 2012). The field became fragmented with ideological dilemmas and multiple identities (Wodak & Meyer, 2009).

Post-theory in landscape architecture suggests theory should emerge from practice. Early texts like Vitruvius's "De Architectura" emphasized harmony between nature and built environments, also The Renaissance works, such as Alberti's "De Re Aedificatoria," focused on garden aesthetics (Jellicoe & Jellicoe, 1975). Olmsted's 19th-century writings addressed industrial urban challenges, advocating for public parks (Jellicoe & Jellicoe, 1975). McHarg's "Design with Nature" responded to environmental concerns, initiating ecological planning (McHarg, 1969). Contemporary works, like "The Landscape Urbanism Reader," emphasize sustainable design amidst climate change (Waldheim, 2006). The theories after modern era supports landscape architecture's adaptation to societal needs, technological developments, and ecological awareness.

Prominent theorists like Meyer (1991) and Corner (1991) emphasize the importance of socio-political contexts in landscape architecture theory. Corner (1999) investigates the theoretical foundations and debates within the field, highlighting cultural, ecological, and social shifts. Meyer (1991) also influenced landscape theory by focusing on socio-cultural contexts and advocating for critical approaches considering power, identity, and representation.

In the postmodern era, align with the development of the profession, landscape architecture has often prioritized practice over theory. Riley (1990) describes this as "theorylessness," suggesting many purported theories are pseudo-theories. He advocates a post-theoretical approach, distinguishing frameworks from aphorisms and confining "theory" to knowledge explaining specific real-world events.

Aligned with post-theoretical thought, landscape theory challenges naturalized thought patterns, offers alternatives, and reshapes the relationship between culture and landscape. Meyer (1991) advocates viewing landscapes as dynamic elements with autonomous design language. Corner (1991) similarly argues for transforming landscapes into active, strategic cultural elements. These studies critique existing knowledge and encourage new forms of understanding and research methods. Kaplan (2017) stresses the need for comprehensive conceptualization encompassing all dimensions of landscape theory and practice for full comprehension and interpretation.

Landscape architects and theorists see the profession as practice-oriented and not fully equipped with high theory, though often seen as having "theory hope" like Speaks' (2002) approach. However, a theory developing in close conjunction with real life is undeniable. Despite its recent emergence, the profession has paved the way for a naturally developing post-theory form. Eagleton (2004) highlights the variability of nature and culture, arguing changing cultural values can be more

challenging than altering physical landscapes. This supports the post-theoretical approach, emphasizing adaptable and context-sensitive theoretical frameworks in landscape architecture.

Landscape is seen as a sum of events and phenomena from the interaction between nature and humans. This definition explains how landscape exists symbiotically with social and physical communities, nature, and human structures. It cannot be separated from individual/social perception and the temporal dynamics of cultures, placing the individual at the center (Kaplan, 2009; Kaplan, 2017; Swaffield, 2006; Weller, 2001).

The concept of landscape maintains a vital essence while balancing elements over time. Each landscape has a unique character and narrative shaped by people and nature. Kaplan (2017) categorizes landscape into three axes: material, lens, and approach. Landscape is constantly evolving, with changing colors and textures reflecting the seasons. Human needs and actions significantly influence landscape direction, sustaining continuous interest and commitment. The landscape's dynamism, changing nature, and richness offer new opportunities for discovery. People strive to understand and coexist with the landscape, enhancing its value as a living work of art. Ultimately, the landscape emerges as a narrative born from the interaction between nature and humanity, balancing stability and dynamism, with human design and actions contributing to its development.

In landscape architecture, the appropriate level of generalization for theory is also an integral part of some debates. Theory can be expressed at various scales. According to Meyer (1991),

> "Landscape theory is not general but specific… Landscape architectural design and theory are known through observation or experience, known in an immediate and sensory way - everyone knows."

Therefore, landscape architecture theory is situational, explicitly historical, conditional, pragmatic, and ad hoc. It is not concerned with idealistic universals but rather finds meaning in the field through form and structure (Meyer, 1991; Swaffield, 2006). Landscape architecture theory, with its multifaceted, evolving, and practice-oriented nature, has embarked on a transformative journey by embracing a post-theoretical format. Critical perspectives have significantly shaped the development of post-theoretical thinking in this field. The post-theoretical approach in landscape architecture involves sensitivity to context, interdisciplinary collaboration, and connections with local communities and ecosystems. However, the focus is on understanding and shaping the complex network of relationships that constitute a landscape, rather than designing individual objects.

4. Hermeneutics in landscape architecture

4.1. Hermeneutics as an interpreter between theory and practice

For Gadamer, praxis is the formulation of modes of relating to life in the broadest sense (Gadamer, 2006 as cited in Bernstein,1982). Praxis exists between being in life and action. In interpreting a text, there is a theoretical attitude towards the practice of interpretation, but at the same time, within it, there is a world-directedness that opens up in the communicative nature of the interpreted experience (Gadamer, 2006). In this context, Gadamer attempts to define his philosophical hermeneutics as an understanding related to practice, aiming to transcend the modern opposition between theory and praxis. He seeks to reintegrate praxis into theory within a holistic understanding of truth (Gadamer, 2006).

The post-theoretical approach, while questioning the traditional distinction between theory and practice, does not distinguish one from another. However, this approach acknowledges that theory and practice are intertwined (Eagleton ,2004). If the traditional division between theory and practice is eliminated from a post-theoretical perspective, the emphasis shifts towards examining the context in which discourse and action occur in detail. It becomes necessary to understand what concepts (or clusters of meaning) constitute the sources of actions. The distinction between theory and practice cannot be rigidly delineated. However,

recognizing that these two concepts have distinct aspects allows us to acknowledge their uniqueness and value within their respective domains. During this period, hermeneutics focuses on in-depth understanding in the analysis of the relationship between theory and practice. It helps us understand how theoretical approaches engage in dialogue with practice and how this dialogue generates interaction.

By emphasizing the continuous nature of understanding and interpretation, a process-oriented approach helps us grasp the dynamic nature of the relationship between theory and practice. Hermeneutics provides valuable insights into the interpretation of events and phenomena by highlighting the significance of understanding within the context of human experience. Hermeneutics posits that meaning is not an inherent property of the objective world but emerges within the realm of human interpretation and understanding (Drenthen, 2016).

Hermeneutics supports techniques such as text analysis, historical criticism, and phenomenological thinking to understand the deep meanings of texts. Different from conventional reading methodologies, instead of aiming to find a single, objective truth, hermeneutics accepts the diversity of interpretations and argues that meaning is formed by the combination of horizons between the text and the interpreter. This approach questions existing debates and encourages ongoing dialogues to enrich meaning. Hermeneutics used practically in literary and philosophical studies, as well as in fields such as theology and social sciences, where contextual understanding is important for understanding complex texts and cultural values. Similarly, the processes developed within the profession of landscape architecture can be viewed as an open text open to interpretation [1]. Landscape architects can bring their own horizons to the landscape, engaging with the multifaceted meanings existing within it as interpreters. According to Eaton (2006) hermeneutics, the theory of interpretation, and neo-pragmatism, a philosophical approach emphasizing practical consequences and real-world applications, intersect in landscape architecture through the process of understanding and designing landscapes. Eaton (2006) mentiones that "*Hermeneutics and neo-pragmatism offer an approach to guide 'theory talk' in landscape architecture that can move past commentary on perceived problems and work toward informing what landscape architects do and can do*". Especially in today's post-theoretical environment, where the parameters influencing decisions are increasingly diverse and taking on a holistic perspective, we can say that semantic structures transform themselves into visible patterns. In this era where the boundaries between practice and theory are becoming increasingly blurred, the tracking of processes also becomes more complex. In this context, hermeneutics is seen as an important form of interpretation for understanding which factors influence outcomes and how processes unfold.

4.2. Hermeneutic reading as a methodology

This research aims to explore the evolution of landscape architecture practices in a post-theoretical context. The main focus is to understand the transformation of the National Landscape Architecture Awards in Turkey, a pivotal entity in the profession's development, despite its recent history. Additionally, it considers the impact of the "International Landscape Architecture Awards" on the profession, which are particularly in enhancing the profession's prestige and public perception. The awards have been given annually during National Landscape Architecture Week since 2009, and they have recognized 101 projects in various categories, spanning from "Implemented Projects" to the "Communication Category" and from the "Young Landscape Architect Award" to "Analysis and Planning". Award-winning projects can be interpreted not only as tools for recognition but also as texts that provide information about the content and orientations of the profession (TMMOBPMO, 2022a). Through a hermeneutic interpretation of the awarded projects, the study aims to explore how these factors have shaped the post-theoretical condition

of landscape architecture at a national level. In this context, theoretical approaches and practical applications that evident in the awarded projects have been analyzed holistically through a hermeneutic lens.

The first step of the content analysis involved reading design and jury reports of award-winning projects, analyzed using Atlas.ti Version 23.4.0 qualitative data management software (Atlas,ti, 2023). The analysis categorized theoretical approaches into sub-categories to understand the main concepts in the discourse. Design and planning decisions were then examined to see how they addressed these approaches practically. For each of the 69 projects, theoretical concepts and relationships were listed alongside practical applications that integrate these goals into the design process.

During the hermeneutic reading process, theoretical approaches and practical solutions were examined, identifying recurring themes, concepts, and relationships within project texts. The projects were examined considering the awards' significance within the landscape architecture discipline and the social, cultural, and political context of the award periods (Figure 1). As a conclusion, the study aims to examine the post-theoretical evolutionary process of landscape architecture in Turkey, evaluating the dynamics of the National Landscape Architecture Awards and their interaction between theory and practice.

5. Symbols of merit or narratives of culture? Understanding the hermeneutics of National Landscape Architecture Awards in Turkey

The Turkish Chamber of Landscape Architects (TMMOB PMO) organizes these awards with the aim of promoting and recognizing landscape architecture activities nationwide by supporting the development of the profession (TMMOBPMO, 2022a). Each year, TMMOB PMO publishes a set of criteria for the awards as a document before accepting submissions. It is mandatory for all participants to be members of the organization (TMMOBPMO, 2022a).

Out of the total 101 awards, 32 awards were excluded from the analysis process due to their non-project nature categorized as Honor Awards, Communication Awards, and Contribution to the Profession Awards. Of the remaining 69 projects, it was not possible to access the project content for 15 of them. However, this discrepancy was overlooked as content was provided for the majority of the projects that received awards each year, and the projects exhibited sufficient diversity among themselves.

5.1. A Reflection on the evolution of landscape architecture: Analyzing the themes of the National Landscape Architecture Awards

The National Landscape Architecture Awards provide a unique platform in

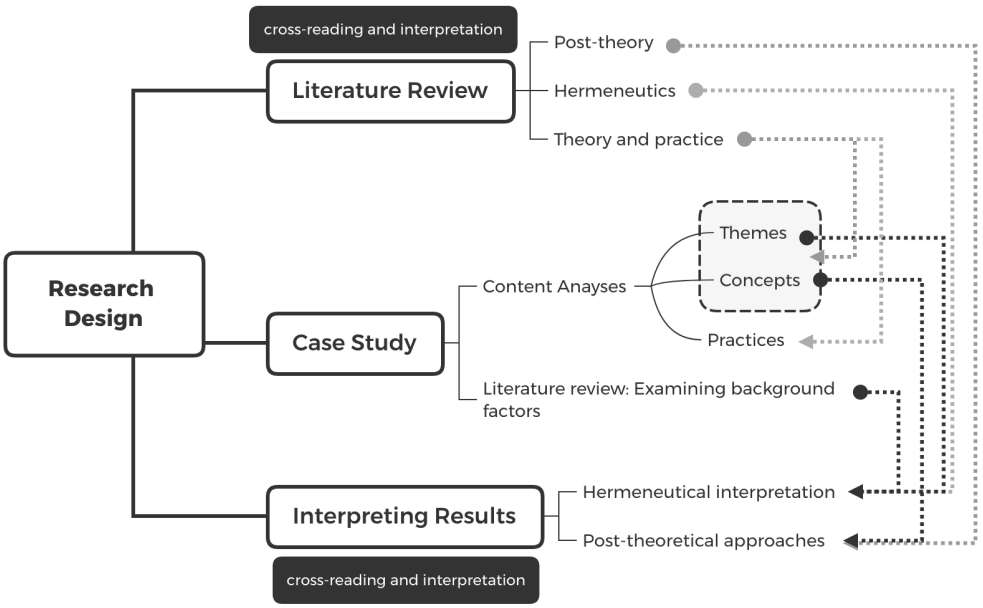

Figure 1. *Research design.*

Turkey to celebrate the evolution of landscape architecture. The themes set by the commitees for each year reflect how landscape architecture in Turkey has evolved in response to the challenges and opportunities faced by society and the environment. In this context, to understand the dynamics of the profession's early-historic development, the specifications of the awards were examined, and the themes emphasized by these specifications for project submissions were evaluated in terms of their scope.

The categories and scope of these awards have evolved, especially at specific turning points. Between 2009 and 2015, the focus was primarily on the categories of Project and Implemented Project, while from 2015 to 2017, categories such as Implemented Project, Unimplemented Project, Analysis and Planning, Urban Icon, Communication, and Young Landscape Architect gained prominence (TMMOBPMO, 2014b; TMMOBPMO, 2015a; TMMOBPMO, 2016b; TMMOBPMO, 2017a). Between 2018 and 2022, new categories like General Category Project, Settlement Area Project, Urban Design, Analysis and Planning were introduced, increasing the total number of categories to 13, allowing for a more comprehensive evaluation of the awards (TMMOBPMO, 2018; TMMOBPMO, 2019b; TMMOBPMO, 2021; TMMOBPMO, 2022). Additionally, since its inception, the awards have recognized individuals who have made significant contributions and services to Landscape Architecture and TMMOB PMO with an Honorary Award (Table 1; TMMOBPMO, 2022a).

Content analysis was conducted on the project texts. During the content analysis, the discourses used in the descriptions of the award-winning projects were examined first. To analyze in detail the topics and concepts addressed by these discourses, the targeted objectives of the projects were identified. Then, in order to express the relationship between objectives with concrete indicators, relevant sections of the project texts were subjected to discourse analysis. Using the Atlas.ti qualitative data analysis software, objectives and aims of the projects were repeatedly scanned and those with meaningful relationships were noted. These meaningful relationships were compiled under the main heading of "concepts." The process has been repeated until the identification of a total of 19 main concepts, as depicted in Figure 2. The concepts of the award-winning projects have been diversified since the early period. In the year 2021, when the number of awards reached its maximum, the themes similarly increased in diversity.

Table 1. *Distribution of award categories through years.*

Year	Award Categories
2009-2015	Project Award
	Implemented Project Award
	Honor Award
2016-2017	Inplemented Project Award
	Non-Implemented Project Award
	Analysis and Planning Award
	Landmark Award
	Communication Award
	Contribution to The Profession Award
	Young Landscape Architect Award
	Honor Award
2018-2022	General Category Project Award
	Residential Project Award
	Urban Design Award
	Analysis and Planning Award
	Sustainable Practices and Projects in Public Landscape Design Award
	Young Landscape Architect Award
	Communication Award
	Contribution to the Profession Award
	Honor Award

Throughout this process, the award categories have reflected developments and emphases within the field of landscape architecture. Upon examining Figure 3, it is discernible that there is engagement with almost every concept across all categories over time. This suggests that the profession has cultivated a consistent discourse. Notably, landscape architects, especially those who focused on place-context, display a comprehensive perspective which emphasizes "historical cultural context", "ecological awareness", and "user-centered design" approaches in every award category. The greater number of issues addressed in the applied project category indicates that the award criteria combine both conceptual and practical considerations.

Similarly, due to its inherent scale, the urban design category prominently features concepts such as "public space and interest", "cultural and historical context", and "environment and urban". The least addressed concepts have been "multidisciplinary approach" and "private areas and privacy".

Figure 4 presents the distribution of concepts addressed by projects according to award themes. When examining the diagram, it can be seen that in 2016, the theme of protected areas had the most conceptual diversity, primarily in the "cultural and historical context." Subsequently, in the 2019 theme of Time, Space, and Memory, the concept of "spatial diversity" is most prominently addressed.

The National Landscape Architecture Awards, presented from 2009 to the present, provide a detailed reflection of the evolution of landscape architecture, its predominant trends, and key concepts that shape the sector. These awards vividly showcase the changes and developments in the field, highlighting prominent trends, trans-

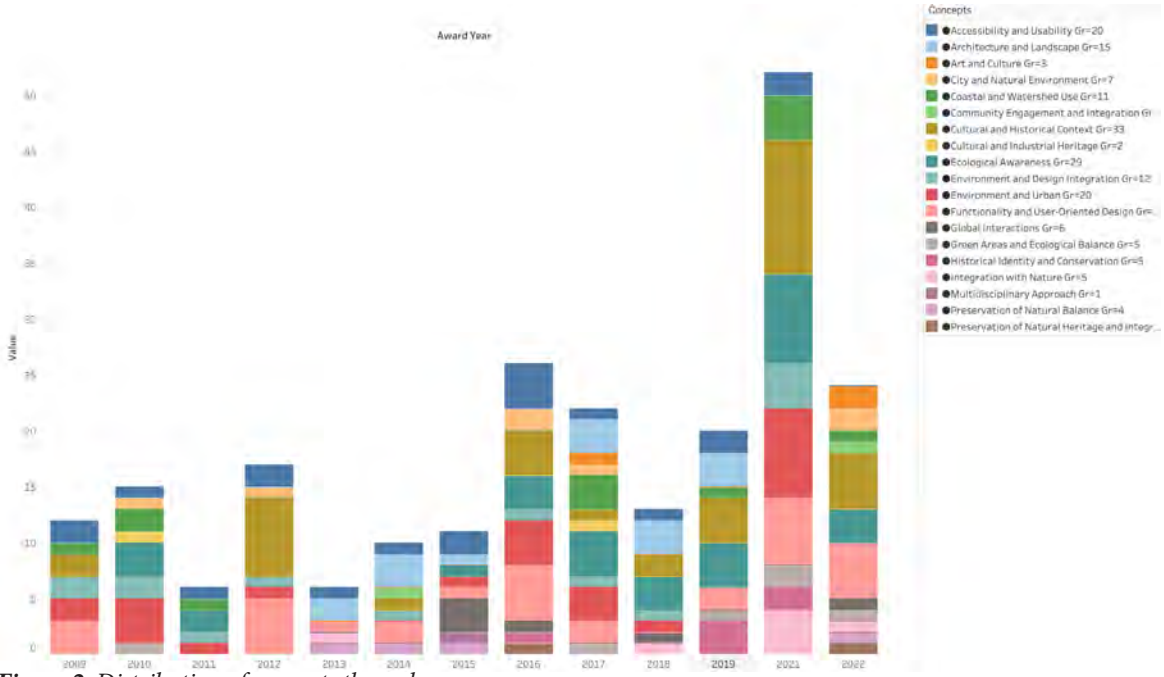

Figure 2. *Distribution of concepts through years.*

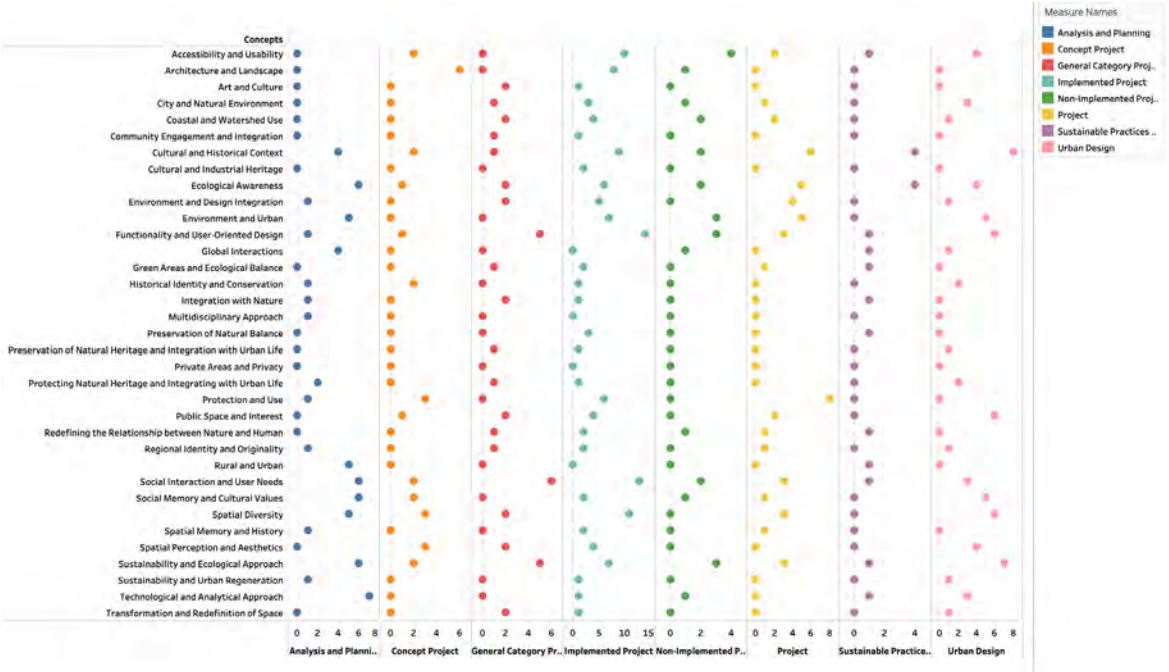

Figure 3. *Distribution of concepts/approaches by award categories.*

formations, and turning points within landscape architecture during this period.

Over the course of the past decade and beyond, landscape architecture has undergone transformative shifts. Each period has been marked by its own set of challenges, its own cultural, socio-ecological, and regulatory imperatives. This evolution has been eloquently reflected in the National Landscape Architecture Awards and the associated themes that are in essence, a mirror to the changing urban scape.

The themes and sub-concepts of the National Landscape Architecture Awards in different periods offer a significant perspective reflecting the evolving nature of the discipline. Reading these sub-concepts within their hermeneutical contexts (such as socio-cultural, historical, ecological, political) will reveal us the integrated evaluation of the theory and practice in awarded projects.

5.2. Socio-ecological concerns in the rise of the urban (2009-2010)

The year 2009, the period in which these awards were launched, marks a dynamic time for the professional discipline on a national scale. The acceptance of the Association of Landscape Architects to membership at the European Federation of Landscape Architects (EFLA) General Assembly held in Brussels on 20-22 November 2009 initiated international participation. In the same year, with the enactment of the "Opening Areas Near Military Areas and Military Security Zones for Development" law, forest

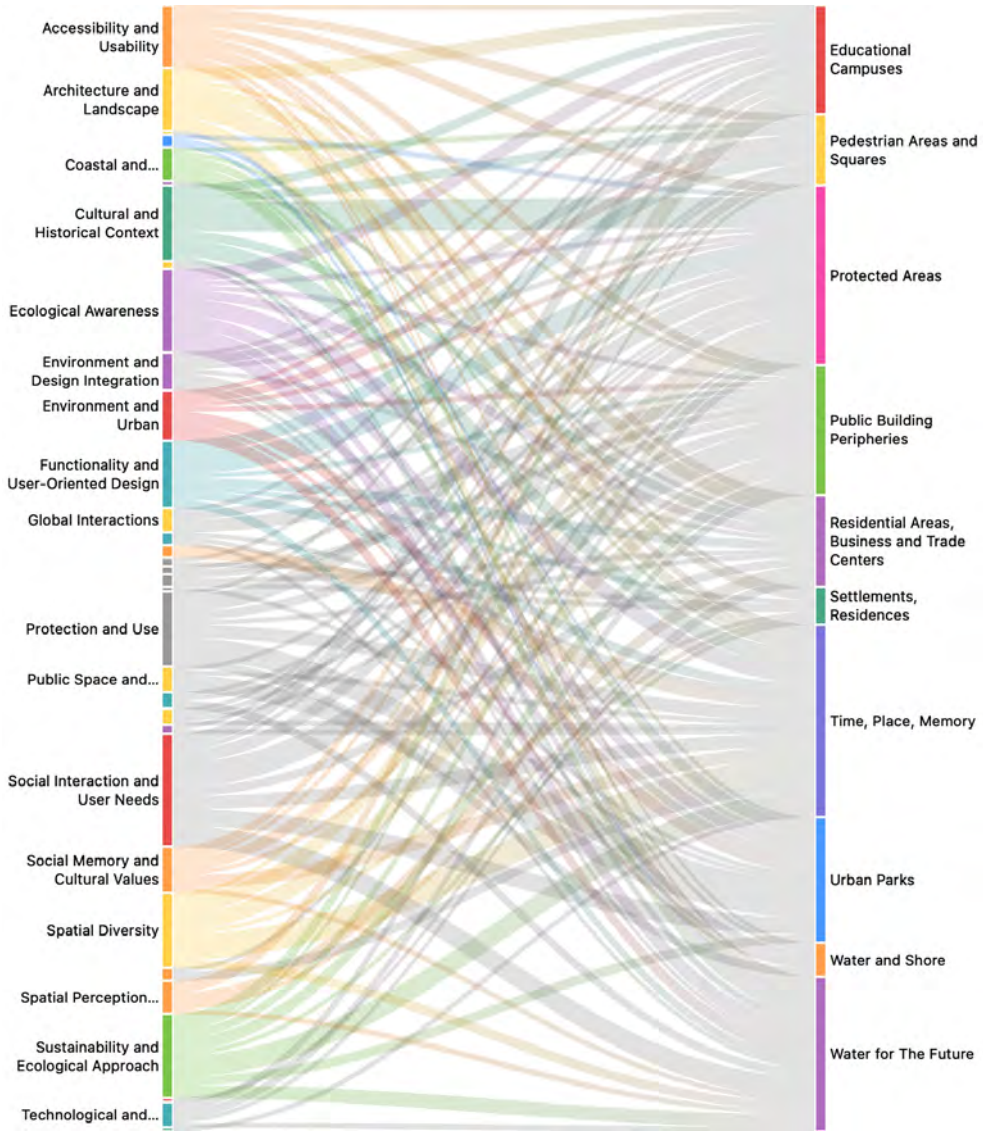

Figure 4. *Distribution of concepts by award themes.*

areas were opened to construction, which increased the demand for hard surfaces in urban areas. Additionally, "The Istanbul Zoning Regulation Plan" has been updated (Nuhoğlu et al., 2016). In this context, the role of landscape architecture in urban areas gained even greater importance. As a result of the legal efforts by the association, the Ministry of Public Works and Settlements explicitly stated in a defense document sent to the association on July 10, 2009, that landscape projects became mandatory in construction areas, and their boundaries needed to be delineated by the Landscape Architects Association (TMMOBPMO, August 2009). Thus, landscape architects' responsibilities extended into urban areas as well.

The first edition of the National Landscape Architecture Awards in 2009 introduced "Pedestrian Areas and Squares" as its central theme, reflecting evolving landscape dynamics (TMMOBPMO, 2014a). The subsequent 2010 edition, themed "Urban Parks," prioritized the expansion of green spaces and the preservation of natural ecosystems within urban areas in response to urbanization's adverse effects (TMMOBPMO, 2014b). This period also emphasized sub-concepts such as the integration of landscape with its environmental and cultural context and the promotion of local identity. Notable projects included the restoration of historical buildings in the Aksaray City Square [2], highlighting cultural preservation, and the Newport

Figure 5. *Newport Square International Project Sketch From Sunay Erdem. 1st National Landscape Architecture Awards "Project" category winner. Project Year: 2006, Project Team: Sunay Erdem Architects (TMMOBPMO, 2014a).*

Square International Project, which aimed to connect a city segment with its surroundings while adapting to the local context (Figure 5; TMMOBPMO, 2014a).

The Bilecik Hamsu Valley City Park Project serves as a compelling illustration of this socio-ecological relationship. Situated in the historically significant Hamsu Valley, the project acknowledges the valley's heritage dating back to the Eastern Roman period, continuing through the Early Ottoman period and the War of Independence. Recognized with the Project Award in 2010, it stands out for its design that respects the region's historical fabric, integrates natural landscape values, enhances the urban green space network, and opens the valley for public use (TMMOBPMO, 2010).

The National Landscape Architecture Awards, launched in 2009, emphasized its role in urbanism dynamics with the themes of "Pedestrian Areas and Squares" and "Urban Parks". This period reflects Lyotard's concept of "distrust of metanarratives" and refers to a period in which grand narratives were replaced by small and local narratives. These projects emphasize the importance of preserving local identity and natural ecosystems. These projects take place within a framework where theory and practice are intertwined, emphasizing the importance of preserving local contexts and cultural values.

5.3. Challenging in local and global scales (2011-2015)

Between 2011 and 2015, urban and natural environments faced significant challenges. Projects like the Istanbul Canal and the 3rd Bosphorus Bridge impacted terrestrial and aquatic ecosystems, while global climate change effects, such as rising sea levels and increased flooding, became evident (Akbulut & Candan, 2014; Envirotech, 2019). The 2011 "Water and Coastal" theme at the 3rd National Landscape Architecture Awards emphasized urban-coastal relationships and sustainable waterfront preservation (TMMOBPMO, 2014).

In 2012, planning authority over Turkey's protected areas shifted to the Ministry of Environment and Urbanization, sparking debates over the Ankara Atatürk Forest Farm's designation as a renewal area (TMMOBPMO, 2012a; Ministry of Environment and Urbanization, 2013). The 4th Award period's "Protected Areas" theme focused on historical and cultural preservation, with projects like Edirne Municipality's Selimiye Mosque integrating urban spaces with historical environments (TMMOBPMO, 2012b; TMMOBPMO, 2014).

Post-1999 Marmara Earthquake legislation led to urban transformation projects in high-risk areas, influencing urban development practices. The 2013-2015 awards promoted the synergy of architecture and landscape architecture, reflecting the discipline's multidisciplinary growth (Ministry of Urban and Environment, 2012; TMMOBPMO, 2013, 2014a, 2015a). The 2013 Gezi Park protests highlighted urban planning issues, social justice, and public space protection, recognized in the 2015 awards (Nuhoğlu et al., 2016; TMMOBPMO, 2015a).

In 2013, the Ministry of Family and Social Policies included landscape architects in disability access committees, with the 7th National Landscape Architecture Awards showcasing inclusive projects like the "Autistic Children's Education Center" (Ministry of Family and Social Policies, 2013; TMMOBPMO, 2015a).

This period aligns with Lyotard's (1979) post-theoretical process, where local contexts gain importance over grand narratives, and social movements, as Eagleton theorizes, shape cultural and political debates.

5.4. Touches of eco-centrism in landscape (2016-2018)

The year 2016 witnessed a notable expansion of the holistic and multidisciplinary nature of the landscape architecture profession, with a thematic focus on "Urban Design" (TMMOBPMO, 2016b). This period coincided with the rapid expansion of landscape architects' design domains and an increased awareness of natural crises in the media. Key concepts that gained prominence during this period included "ecosystem restoration,"

"sustainable waste management," "permeable landscapes," and "biodiversity" (TMMOBPMO, 2016a).

Mitchell's re-evaluation of the effects of technology on spatial arrangements shows how projects in this period achieved environmental sustainability using digital design tools. Fainstein's (2009) planning processes based on the participation of local communities and Jencks' aims of postmodern architecture to reflect local cultural elements support the theoretical approaches in these projects. Two exemplary projects from this year exemplify these principles. The Tuzla Kamil Abdüş Lagoon project prioritized sustainability, emphasizing the restoration of ecological values and water management, particularly highlighting the significance of wetlands (Figure 6; TMMOBPMO, 2016a). Meanwhile, the Eskişehir Waste Stations project[4] emphasized sustainable waste management, utilizing Geographic Information Systems (GIS) for data analysis and site selection, underlining the importance of data-driven design approaches and the integration of "analytical approach" and "technology" (TMMOBPMO, 2016a).

In 2017, the theme shifted to "Water for the Future," signifying a significant pivot within the landscape architecture field, with a renewed focus on water surfaces and wetlands as fundamental components of spatial design (TMMOBPMO, 2017a). The Chamber of Landscape Architects had long been engaged in efforts to conserve wetlands (TMMOBPMO, 2015b; TMMOBPMO, 2016c). Environmental concerns, such as the potential harm from the third airport project over Terkos Lake and the submergence of Hasankeyf, as well as impending water crises, played a pivotal role in shaping the agenda in the latter part of the 2010s (TMMOBPMO, February 2016c). Awarded projects during this year continued to underscore socio-ecological considerations, highlighting themes like "the relationship between nature and humans," "industrial heritage," and "natural heritage" within cultural and historical contexts. This reflects the landscape architecture field's tendency to address ecological concerns with-

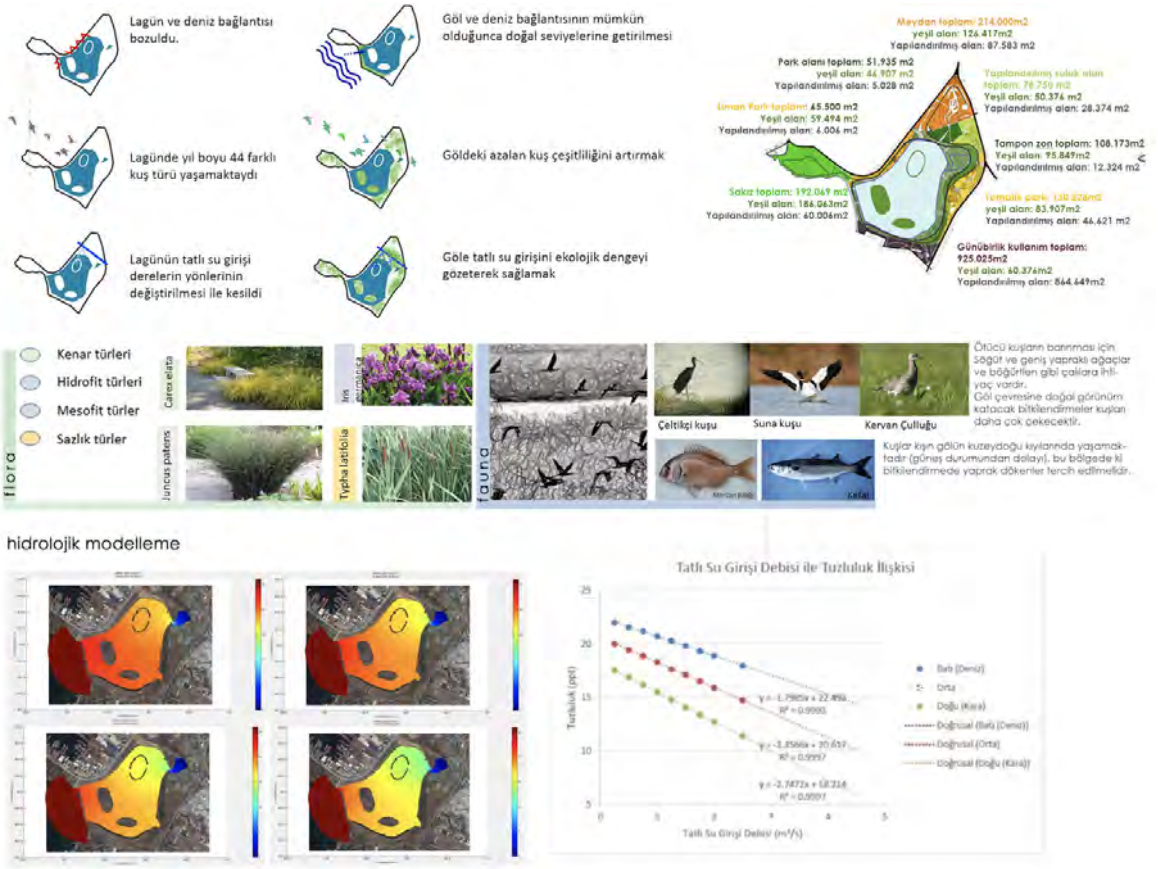

Figure 6. *Tuzla Kamil Abdüş Lagoon Project. 7th National Landscape Architecture Awards "Analyses and Planning" category winner. Project Year: 2019, Project Team: Hayriye Eşbah Tunçay, Author(s), Nazife Tuğçe Onuk.*

in the broader framework of societal dynamics and historical backgrounds (TMMOBPMO, June 2017).

The year 2018 introduced a fresh perspective with the theme "Educational Campuses," expanding the socio-ecological context of landscape into campus environments (Arkitera, 2018). This emphasized that educational spaces serve not only as learning environments but are also essential for fostering social interactions and ecological sustainability. For example, the ITU Green Campus Project integrated ecological approaches such as rainwater management and the promotion of biodiversity through the use of permeable concrete (Figure 7). Similarly, the Bandırma Onyedi Eylül University Student Life Center Landscape Project embraced a dynamic design language, leveraging topography and landscape elements to encourage social interaction (TMMOBPMO, 2018).

5.5. Context-oriented solutions in rural and urban (2019-today)

In 2019, the National Landscape Architecture Awards underwent a thematic shift, centering on the concept of "Time, Place, Memory" (TMMOB, 2019b). These projects, rooted in socio-cultural memories of specific locales and communities, introduced innovative landscape design concepts, including "landscape and women", "urban agriculture and permaculture", and "the ecological design guide" (TMMOBPMO, 2019a). For example, the Silivri Büyükkılıçlı Village Project[5] featured the Women Farmers Village, showcasing landscape's potential for promoting social and economic activities, particularly among women (TMMOBPMO, 2019a).

However, in 2020, the chamber experienced a change in leadership, leading to the discontinuation of the practice of setting annual award themes due to the COVID-19 pandemic and related restrictions, resulting in no awards being presented that year (TMMOBPMO, 2020).

The projects honored at the 12th and 13th National Landscape Architecture Awards in 2021 and 2022 predominantly offered holistic socio-ecological solutions, addressing multiple concepts, in-

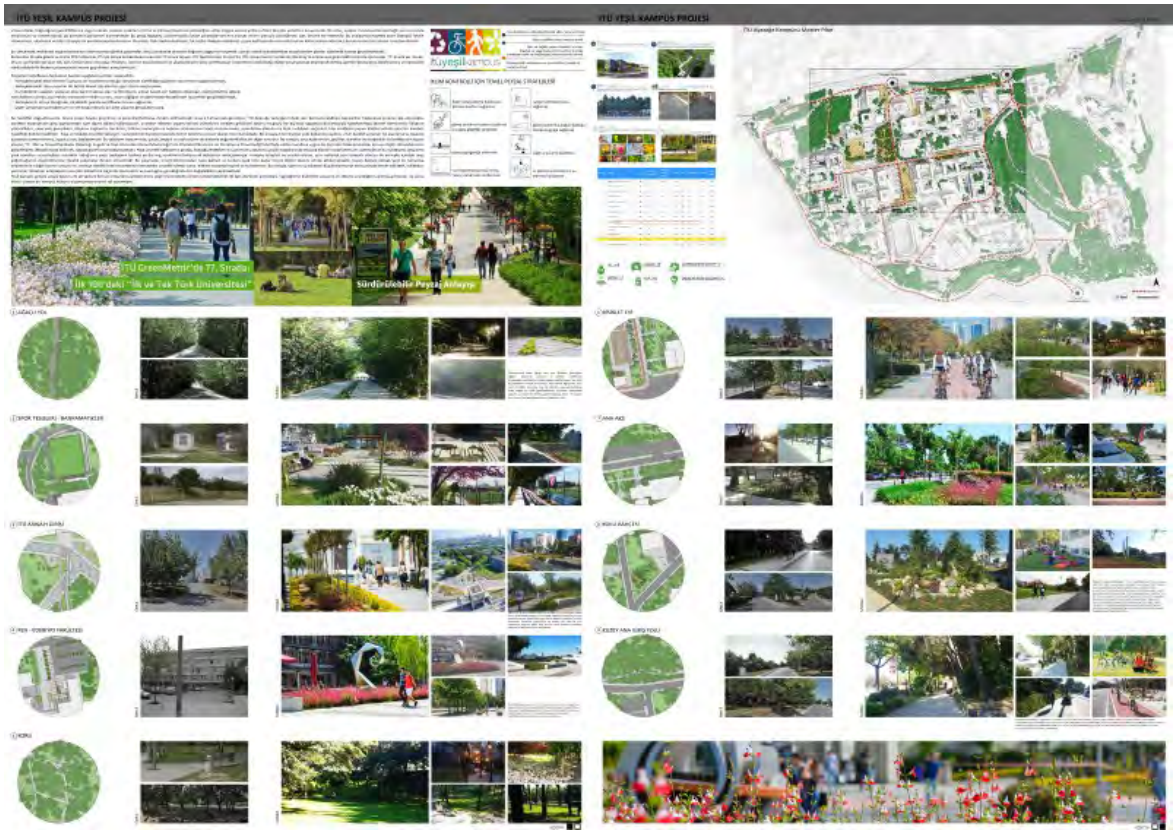

Figure 7. *ITU Green Campus Project. 7th National Landscape Architecture Awards "Analyses and Planning" category winner. Project Year: 2015, Project Team: Hayriye EŞBAH TUNÇAY, Yasin Çağatay SEÇKİN, Gülname TURAN, Mehmet KARACA, Tayfun KINDAP, Telem GÖK SADIKOĞLU, Mustafa Sait YAZGAN, Sis Karaman ALKAN.*

cluding the relationship between nature and humans, regional identity, social participation, and ecological approaches (TMMOBPMO, 2021; TMMOBPMO, 2022a). The concept of "Ecosystem and Diversity" aimed to preserve ecosystem diversity by creating wetlands and enhancing species' living conditions. Practical solutions were devised for topographic intervention to control water flow. "Treatment and Sustainability" practices involved further purifying water in wetland areas, while "Recreation and Design" integrated recreational programs for natural area use. The Kadıköy Square Urban Design Project prioritized spatial integrity through considerations of the urban silhouette, transportation, and accessibility (Figure 8; TMMOBPMO, 2021). Conversely, the Atatürk Urban Forest Project underscored nature's inherent value and the imperative of preservation [6]. as a branch of the awarded project "Tuzla Kamil Abdüş Lagoon" in 2016 Limanpark Project re-awarded for the

Figure 8. *Kadıköy Square and Urban Design Project, 13th National Landscape Architecture Awards "Urban Design" category winner. Project Year: 2020. Project Team: M. Buğra Yerliyurt, Defne Bozkurt, Hasan Yirmibeşoğlu, Cafer Bozkurt, Prof. Dr. Mehmet Emre Aysu.Nazife Tuğçe Onuk.*

integration and reciprocity approach by highlighting human-directed natural processes through the union of natural water bodies (TMMOBPMO, 2022b). Harvey's (1996) emphasis on social justice and environmental sustainability is evident in projects from this period.

6. Conclusion

The post-theory approach redefines the relationship between theory and practice, significantly influencing various disciplines. In literary criticism and theory, it has fostered interdisciplinary and innovative approaches, challenging traditional structures. Similarly, cinema studies, architecture, and urban design theories have been reshaped under post-theory's influence. In landscape architecture, theory and practice are deeply intertwined with written texts reflecting the era's needs and values. This evolution shows landscape architecture's adaptation to societal needs, technological advancements, and ecological imperatives, illustrating the dynamic interaction between theory and practice.

Post-theory questions the distinction between traditional theory and practice, while recognizing the intertwined nature of these two concepts. In this context, the hermeneutics emphasizes meaning-making and subjective participation in the relationship between theory and practice. According to Eagleton (2004), the art of interpretation that forms the foundation of hermeneutics emerged from a colonial encounter. While hermeneutics may bring theory closer to its essence through "dizzying abstractions," Eagleton (2004) suggests that in the post-theory era, it should be reconsidered not as a method of textual analysis but as a process of reading. In this context, hermeneutics, as a mode of interpretation and understanding, can constitute one of the fundamental building blocks of context-sensitive relationships between theory and practice in the post-theory era.

The evolution of the National Landscape Architecture Awards across various categories reflects the changing priorities and approaches within landscape architecture over time. As a result of the hermeneutical reading, these awards underscore that landscape architecture bears social, ecological, and cultural responsibilities alongside aesthetic ones. They showcase the discipline's capacity to provide innovative solutions to urban and environmental challenges, exemplifying a post-theoretical state characterized by holistic perspectives, responsiveness to contemporary issues, and adaptability to changing dynamics.

The evolution of the National Landscape Architecture Awards is emblematic of the post-theory approach, reflecting an integrative and responsive paradigm shift in the discipline. Drawing from the previously detailed progression, we can discern the following influences of post-theory branches on the Awards (Figure 9).

6.1. Global *interactions*

The post-theoretical approach in landscape architecture goes beyond traditional theories, embracing a broader, more comprehensive understanding that values global knowledge exchange and multicultural experiences. This leads to richer, more diverse design solutions. Lyotard's (1979) concept of "disbelief in metanarratives" underscores the importance of smaller, local narratives over grand, universal ones, highlighting the value of universal knowledge exchange and multicultural experiences. Landscape architecture synthesizes global information sharing and diverse cultural practices within this framework.

Ian McHarg's (1969) ecological planning approach, which emphasizes harmony with nature, has been globally adopted, allowing local knowledge to be reinterpreted in a global context. The Turkish Chamber of Landscape Architects' admission to the European Federation of Landscape Architects facilitated international information exchange and standard harmonization, promoting the development of Turkish landscape architecture in line with international standards.

As the profession evolved, the Awards' themes expanded from local to global concerns, particularly from 2011-2015, addressing issues like cli-

mate change and the urban-rural nexus. The post-theory acknowledges the permeability of local and global interactions, advocating for transcending regional boundaries.

6.2. Socio-cultural context

The post-theoretical situation in landscape architecture proves its integration with social and cultural dynamics, not just physical space creation. In "After Theory," Eagleton (2004) underlines the importance of local narratives and cultural transformation. Landscape architecture, therefore, responds to societal needs and tries to preserve the cultural values. Eckbo's (1950) suggested design approaches promotes social justice and inclusion, aligning with Lyotard's critique of metanarratives. The Awards' themes from 2019 to today underscore user-centered designs and the interplay of time, place, and memory, highlighting solutions resonating with the socio-cultural fabric and immediate environment.

6.3. Ecological context

In "After Theory," Eagleton (2004) highlights the need to redefine the relationship between culture and nature continiously. In ecological context, the profession emphasizes sustainability and environmental protection. Rachel Carson's (1962) and Ian McHarg's (1969) works increased ecological awareness, with McHarg (1969) advocating for design approaches compatible with natural systems. Lyotard's (1979) critique of metanarratives supports the development of flexible, diverse perpectives can be adaptable to various ecological contexts in landscape architecture. This relation can be used to replacing homogenizing environmental policies with solutions tailored to local ecosystems. The awards frequently emphasize ecology, focusing on themes like urban green spaces, ecosystem conservation, sustainable waste management, biodiversity, and the critical role of water, particularly from 2016-2018.

6.4. Holistic approach

Post-theory underlines the importance of traditional frameworks, embracing flexible, practice-based thinking from multiple perspectives. Landscape architecture, developed its background in a close relationship with its surrounding environment by ecology, sustainability, and local contexts, creates a ecological, social, and cultural systems. Theorists like

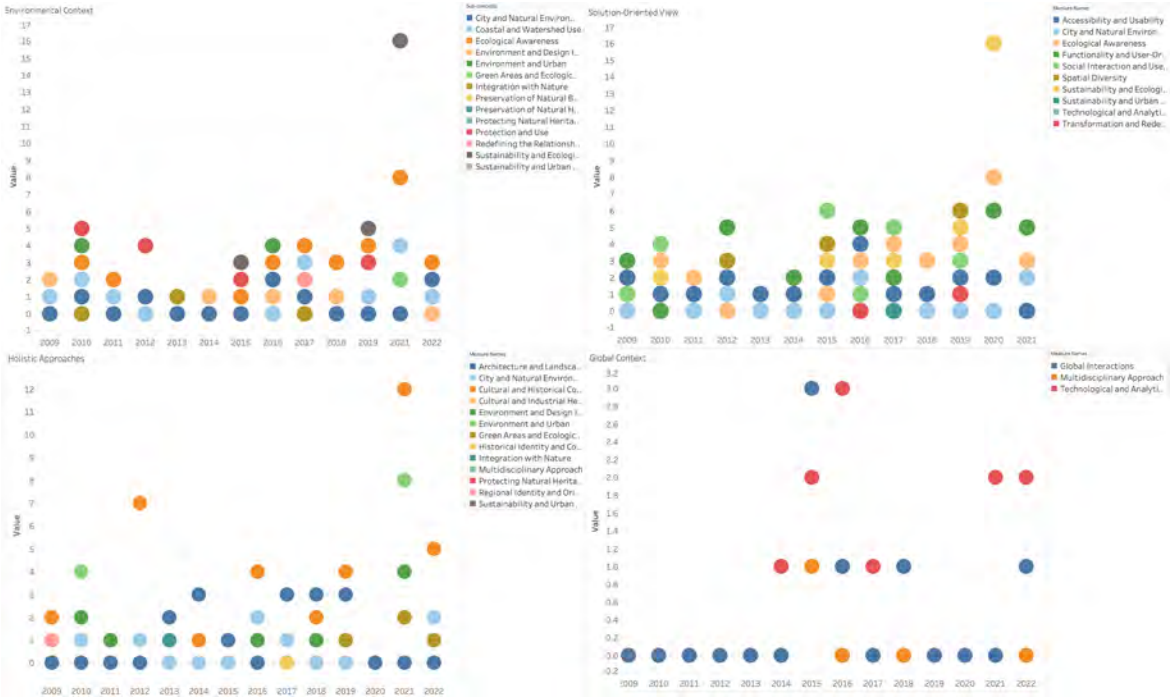

Figure 9. *Concepts related with the post-theoretical situations.*

Elizabeth Meyer (1991) and James Corner (1991) highlight the dynamic relationship between theory and practice by underlining the cultural, social, and ecological changes and focusing not only the outcomes but also processes.

In nationwide, recent awards spotlight versatile, multi-scale projects shaped by geographical, historical, and social contexts, reflecting the post-theoretical emphasis on local experiences and knowledge. The National Landscape Architecture Awards are complitable with this situation by extending beyond aesthetics to encompass social, ecological, and cultural dimensions. The awards recognize the projects and reflect the dynamic nature of landscape architecture, rooted in specific contexts and shaping the field's evolution. This perspective aligns with post-theory, emphasizing the mutual nourishment and transformation of theory and practice.

Over the past fifteen years, landscape architecture has witnessed remarkable shifts. These Awards chronicle these evolutions, each period characterized by distinct socio-cultural, ecological, and regulatory dynamics. This evolving situation underscores the shifting paradigms within landscape architecture. It's evident that award categories adeptly reflect the intricacies of landscape architecture over time. For future reaerch, it is aimed to examine more deeply the specific effects of the post theoretical approach on various landscape architectural practices and their outcomes. The hermeneutic reading of award-winning projects in different regions and cultures can illuminate how local contexts influence the application of post-theoretical principles. Additionally, investigating the long-term ecological impacts and sustainability of these projects can help evaluate the effectiveness of post-theoretical approaches in addressing contemporary environmental challenges. Such research can contribute to a more comprehensive understanding of the evolving relationship between theory and practice in landscape architecture and guide future developments in this field.

Endnotes

[1] Drenthen (2013) describes landscapes as a text, which can also be interpreted by using hermeneutics and used the term "landscape hermeneutics" to read and interpret landscapes. Even though this is in approach to understand mostly the rural or natural environments, it is also possible that the evaluation of a concept or profession can also be seen as text and interpreted with hermeneutics.

[2] In Aksaray's historic city center, initiatives are underway to restore and repurpose heritage buildings and the existing ceremonial and planning areas. A comprehensive project has been developed, spanning 6,600 sqm, including multi-story parking facilities and commercial and cultural units. This encompasses urban planning, architectural, and engineering designs to serve the central city and newly defined commercial functions (TMMOBPMO, 2010).

[3] Completed in 2012 and operational by 2013, the design emphasizes the needs of physically and mentally disabled children. Recognizing that a physically disabled child might also have mental challenges, the landscape was thoughtfully designed. Features include hobby gardens, animal shelters, outdoor classrooms, and playing fields, ensuring an inclusive environment for all (TMMOBPMO, 2015a).

[4] The GIS use in the project effectively to identify optimal waste transfer station locations, highlighting areas in the northwest and southwest as prime, and the northeast and southeast as secondary. The study underscores the importance of GIS in environmentally-responsible decision-making (TMMOBPMO, 2016a).

[5] This project offers a strategic rural development report encompassing feasibility and spatial ideas. Analyzing the region's economic activities emphasizes women's roles in labor and agriculture, proposing a Women Farmers Village. The guide aims to establish growth strategies while preserving the area's uniqueness (TMMOBPMO, 2019a).

[6] Atatürk City Forest, located in Sarıyer, covers 1,077,767 m2. Easily accessible via metro, buses, cars, and walking, it offers parking for 200 vehi-

cles and 200 bicycles. Vehicle entry is restricted, with amenities located near entrances and festival areas. Facilities are accessible for disabled individuals. The forest, rich in flora, fauna, and especially bird species, aims to meet Istanbul's recreational needs while preserving nature (TMMOBPMO, 2021).

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21st century urban aesthetics in the post critical age: SANART publication

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Abstract
This research problematized the relationship between human and the built environment in the 21st century, which it describes as post-critical, and examined the relationship between them in a theoretical framework through aesthetics. Within this framework, it has analyzed selected articles from the proceedings book published by SANART (Association of Aesthetics and Visual Arts). This study has defined aesthetics as a way of relating human beings to their environment. It redefined holistic aesthetic thought through approaches that focus on uncertain, porous, relational boundaries and social processes. With new perspectives that reject the dualism of subject and object, the process associated with the concepts of movement and becoming have been conceptualized through the process of urban experience from the perspective of Manuel DeLanda. This study has analyzed the urban discourses presented in SANART publications with a focus on 'movement'. It has interpreted these movements as a feature of the built environment as it is shaped by the capacities of bodies and space. It has argued that a movement-oriented evaluation of urban aesthetics would further the development of the critical field.

Keywords
Manuel DeLanda, Movements in city, New critical perspectives, SANART, Urban aesthetic.

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1. Introduction

As a result of the growth-oriented economic model, such as rapid urbanization, globalization and overconsumption, we are experiencing a period of social, economic and environmental crisis with many emergencies. In both local and universal contexts, institutions, humanity, and thus the built environment, are moving towards an approach that disregards critical thinking. By relegating processes to the background, this approach focuses on performance and pragmatic, urgent, non-deep results. These crises demonstrate that human beings have a problematic relationship with time, history, nature, the environment and even themselves. The relationship between human beings and their environment has been problematized by researches from different perspectives in social, ecological and spatial contexts (Colamina & Wigley 2016; Berleant, 2016; Erzen, 2007a; Güvenç, 2007). This study will reexamine the relationship between the built environment [1] and the human beings through aesthetic thought.

As throughout history, changing contemporary conditions and paradigms have significantly affected the content and scope of the concept of aesthetics (Suvakovic, 2019; Paetzold, 2013; Maco, 2021a; Erzen, 2007b). Aesthetics of the built environment, as a sub-branch of environmental aesthetics, stands out as a field in need of reformulation in the context of contemporary thoughts and crises (Ockman, 2009; Gage, 2011; Tschumi & Cheng, 2013; Pallasmaa, 2020). A new aesthetic approach is needed for cities, which can also be defined as the breeding ground of social crises from the past to the present. In this context, the research analyzes past cultural perspectives and contemporary approaches. It aims to provide alternative viewpoints on urban, spatial and social aspects of the present and future.

A post-critical perspective that problematizes critique has emerged in the late twentieth century. Our study answers the research questions by exploring the impact of this approach on the aesthetic field within the theoretical framework; In the post-critical age, how do we evaluate the built environment and contemporary aesthetic? Can the current paradigms give rise to alternative interpretations of aesthetics? How is urban aesthetics defined on the basis of these perspectives? What are the potential movements of urban aesthetics within the spatial discourses in SANART's publications? In the 21st century, when everything is more connected, the study aims to understand the relationship between the city and the city dweller. It is based on Manuel DeLanda's approach, which focuses on uncertain, porous, relational boundaries and social processes. The study reorganizes urban aesthetics through DeLanda's perspective, as he has had a significant impact on urban and architectural discourse.

This study analyzes archival documents with a new urban aesthetic approach. It disperses and reassembles the archive of conference and symposium publications of the Association of Aesthetics and Visual Culture (SANART) through a kind of 'archaeological excavation'. Founded in 1991 in Ankara under the leadership of Jale Erzen, this platform stands out with its regular congresses and symposiums as well as its artistic activities. This study has the potential to contribute to the critical field on a social and spatial scale.

2. Aesthetics and the built environment in the post critical era

Terms prefixed with 'post' are often interpreted as expressing change and continuity of mentality (Tekeli, 1993) or intensifying what it replaces (Spencer, 2018). Approaches with the prefix 'post' have been on the rise since the 20th century (Prażmo, 2020). In the last years of the 20th century, when everything became more interconnected, this increase accelerated. The study considers the turn of the 21st century as the post-critical age. This chapter explores the complex relationship between critique, the built environment, aesthetics and contemporary thought.

Architectural critical theory, which resists neoliberalism and capitalism, has been criticized since the 1990s

(Toorn, 2013; Shrijver, 2011; Fisher, 2007). Alternative non-critical discourses claim that critical architectural theory distracts attention from the object (Baird, 2004; Toorn, 2004). Their approach centers the architectural object and form (Toorn, 2004; Spencer, 2018). According to Douglas Spencer (2018), these discourses in architecture prioritizes adaptation to the business and economic world rather than being a means of testing the limits of political ideas and approaches. He claims that architecture has recently experienced its own post-political turn. The post-political approach, whose intellectual pioneers are political philosophers, has recently been incorporated into built environment studies. Erik Swyngedouw (2009), who considers this situation as post-political environmentalism, states that the concept of society is fragmented and the city serves the interests of a certain group. The relationship between the city, which is evaluated on the basis of form due to economic interests, and the city dweller, who is distanced from the social structure, is gradually weakening. Instead of defining the built environment by form, an aesthetic approach is needed that focuses on experience and process, relating the city and the city dweller. In this context, the new aesthetic approach will provide an opportunity both to analyze the complex, intertwined network of relations and to critique market-based and neoliberal policies.

The conceptual content of aesthetics has a rich and complex history. In Ancient Greek philosophy, aesthetics referred to sense and sensation. It developed in the eighteenth century as the science of sensation (Alexander Gottlieb Baumgarten) and as an autonomous field related to the concepts of beauty and the sublime (Immanuel Kant). In the mid-19th century, opposition arose to the valuation of aesthetics as a science of beauty (Ludwig Wittgenstein). In the 20th century, with the radical criticism of Nietzsche, Benjamin, Heidegger and Adorno, aesthetics continued to be associated with different concepts. For a long time, aesthetics was a branch of philosophy. İsmail Tunalı (2002) described philosophical aesthetics through four basic structural elements: aesthetic subject, aesthetic object, aesthetic value and aesthetic judgement. Aesthetics, which was within phenomenological philosophy until the 1980s, was defined as critical aesthetics with the acceptance of contemporary critical theory (Erjavac, 2019). Philosophical aesthetics aims to deepen our understanding of aesthetic phenomena, while critical aesthetics involves evaluating, judging and interpreting art from a critical perspective. The process of aesthetic experience involves the relationship and interaction between aesthetic subject and object (Figure 1). This also includes critique, which is essential for the deepening and contextualizing of aesthetic experience (Crowther, 1993; Şentürer, 2004).

What will replace critique in the field of experience of aesthetics in the post-critical period? In the last 35 years, there has been a widespread discourse that aesthetics is expanding its scope and even emerging from the shadow of philosophy (Erjavec, 2019; Berleant, 2014-2016; Carter, 2007; Maco, 2021a; Gage, 2024). If we look at the International Congresses of Aesthetics since the 1990s, the fields of research are not philosophical aesthetics and the aesthetics of objects, but the aesthetics of all kinds of experience (Erzen & Ranta, 2013; Berleant, 2014). According to Erzen (2007c), aesthetic thinking today does not only encompass art, but also everyday life, sport, eroticism and even

Figure 1. *The changing boundaries of aesthetics.*

the ugly. Aesthetics is a field that relates all concepts, situations and disciplines. In this framework, aesthetics has gone beyond the relationship between subject and object (Figure 2).

Misko Suvakovic (2019) describes the beginning of the 21st century as a period of 'rebooting aesthetics', where there are many theories about the senses, art, culture, nature, the world, technology, the human, the post-human and the non-human. The 21st century's reconceptualization of the human and the social requires a reappraisal of the aesthetic field with contemporary perspectives. According to Colamina and Wigley (2016), the human is never simply human. There are tens of thousands of different species in the human body, the human is suspended in the dense environment of countless species inside and outside. In this framework, the authors argue, it is never clear where the human begins and ends. According to Broidotti (2013), we need to rethink the human beings position in a way that reflects the complexity of our times.

In recent years in the social sciences and humanities, the problematization of the human, the social, nature and the relations between them has refocused on questions of ontology, matter and realism. Object-oriented ontologies, actor-network theory, new materialism, and other approaches based on post humanism problematize the centrality of humans in a hierarchically defined social order and accept the agency of objects. The first common approach of these ideas is that they reject dualisms such as subject-object, nature-culture, mind-matter. From this perspective, all this is a community that does not ignore difference. This new approach about subject and object also affects the distinction between the experienced and the experiencer in aesthetic process. What's needed is a concept that integrates the experienced and the experiencer. Another important concept for explaining multiple levels of social reality is 'becoming'. Becoming is simply about focusing on processes. One of the common and main sources of all these contemporary thinkers is the philosophy of Deleuze. It does not devalue events in the face of the qualities of objects (Deleuze, 2015). Deleuze and Guattari (1994) argue that as long as the beauty of a form or shape is defined by criteria borrowed from science (proportion, symmetry, dissymmetry, projection or transformation, etc.), there is nothing aesthetic about it.

These approaches, which describe a new form of relating, share common concerns. However, they differ both within and between themselves in the way they conceptualize objects and their interactions (Leach, 2016; Nail, 2023; Gamble et al., 2019; Dolphijn & Tuin, 2019). Due to the differences between the approaches, this study analyzes aesthetics only through Manuel DeLanda's approach. The reason for focusing DeLanda is because of his influence on urban and architectural discourse. Although DeLanda is one

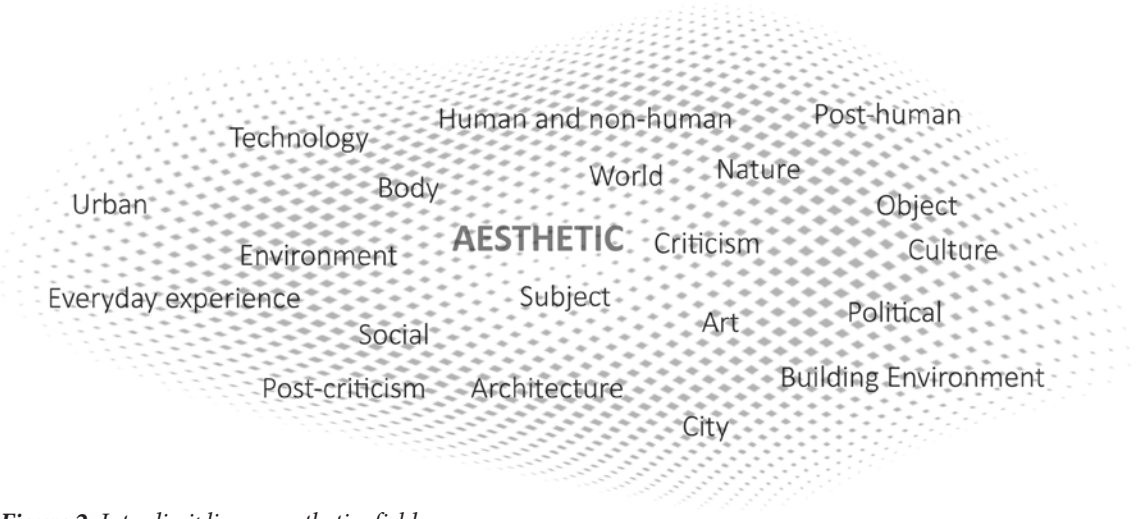

Figure 2. *Interdisciplinary aesthetics field.*

of the representatives of New Materialism, this study describes urban aesthetics from DeLanda's perspective, not the aesthetics of New Materialism. The approach that rejects the duality of subject and object, and the process associated with the concepts of movement and becoming, will be conceptualized from DeLanda's perspective. DeLanda (2009a) analyzes social complexity with reference to Deleuze and Guattari's 'assemblage theory'. Since assemblages are also a form of relation DeLanda's ontology will serve as a model for the aesthetics of the built environment.

Spencer (2021) claims that the assault on criticality in architecture is linked to the revisiting of Deleuze in architectural theory. He also claims that the philosophy of Deleuze, which has been revisited since the 1990s, is misconceived and that the concepts have transformed into formal maneuvers in architectural discipline. DeLanda (2009a) defines social entities in terms of both their characteristics and their capacities. Capacities enable encounters and interactions. Considering Deleuze's thought through process and becoming can be a new suggestion against Spencer's critique.

3. Reformulating the urban aesthetics via Manuel DeLanda's approach

As an interdisciplinary field, the city consists of complex physical, social, cultural and political environments. DeLanda (2000, 2016) sees cities as spaces where many communities and many organizations, as well as various connecting infrastructures, come together in a non-human centred perspective. From this perspective, which focuses on actual mechanisms operating at the spatial scale, the city is no longer the object of a representational definition, but of a mobilized one. Urban aesthetics will be defined through scale and process, which form the main framework of DeLanda's approach (Figure 3).

DeLanda applies assemblage theory to a variety of wholes composed of heterogeneous parts and builds his ontological model on the basis of scales. According to DeLanda (2009a), the entities involved in social processes are not only persons, but also networks, organizations, governments, cities and nations. These assemblages at different scales define relations that interact, involve and sometimes touch. Rejecting the duality of subject and object, he

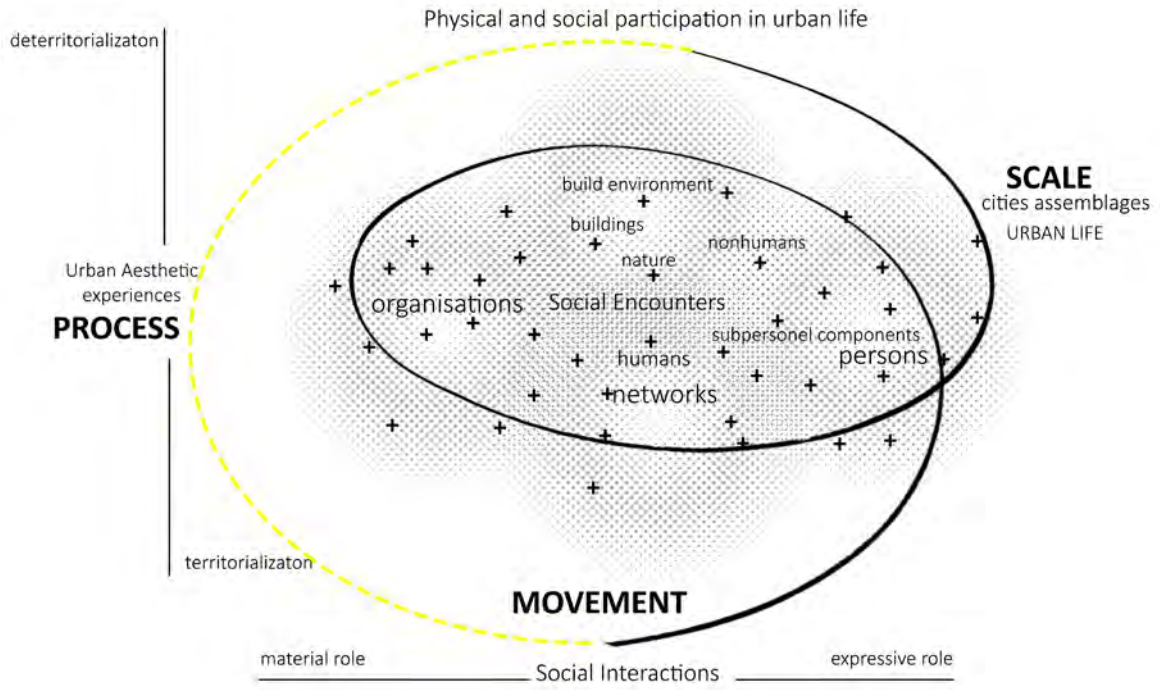

Figure 3. *The relationship between DeLanda's concepts and the city.*

gives all assemblages the title of 'social entities'. Although DeLanda starts his social ontology from the personal scale, he confirms that sub-personal components are the smallest social entity. Person formed by the interaction of sub-personal components also exist as part of populations with which they constantly interact (DeLanda, 2009a). Spatial relations play a crucial role in the understanding of interpersonal networks. It is not possible to conceptualize social entities without a physical infrastructure composed of buildings, roads and various channels for the circulation of matter and energy (DeLanda, 2009a). The built environment can be part of any assemblage at different scales. According to DeLanda, cities are assemblages of people, networks and organizations as well as components such as physical infrastructure of buildings, streets and various channels of circulation. Only if we can approach the city in a very personal and intimate scale, then we can observe the everyday life (Erzen, 2021b). Therefore, this study of urban life will focus on the sub-personal scale and the interpersonal scale. The identity of assemblage at any scale is the product of a process (DeLanda, 2009a). Another aspect to be questioned is the characteristics of the components in the assemblage and the analysis of the process that leads to the assemblages.

According to DeLanda's (2009a) social ontology, human bodies primarily play the material role in all social assemblages. DeLanda (2009a, p.96) refers to short-lived assemblages of social entities as 'social encounters'. Encounters are the starting mechanisms of interactions. There are many and different types of social encounters in daily life in the city. Movements that bring bodies together; conversations, meetings, greetings are relations in the experience of everyday life. It follows that the built environment is both an entity that enables encounter and an entity that is encountered. DeLanda (2009b) distinguishes between the properties of the actual object and its capacity to interact with other entities. At this point, the characteristics of the components are divided into material and expressive roles. While the material role is the capacities that enable establishing relations or unity, the expressive role can be considered as the factors that reveal the class distinction of societies. The roles are variable and can also exist in combinations. Therefore, the reason why the properties of an assemblage are not reducible to those of its parts is that they are the result of the interaction potentials of the components (DeLanda, 2009a). Capacities that enable unity make movement possible. Since aesthetics is conceptualized as a way of relating between human beings and the city, this study will focus on movement that enables encounters and interactions through variable roles.

Another important issue is how the interaction process continues. The city is the habitat not only of people and the built environment, but also of political and economic organizations. Changes at the urban scale (transformation, destruction, growth, etc.) through the policies of national governments or local organizations affect the process of social assemblage. DeLanda expresses this process by using the terms 'territorialization and deterritorialization'. In short, while territorialization is a process that defines spatial boundaries and creates a stable identity, deterritorialization destabilises spatial boundaries and disrupts routines. Fundamental changes that affect the identity of the built environment can deterritorialize other social entities. With the aim of producing a discourse on space, this study defines the positive boundary of the movement through the terms of territorialization and deterritorialization. The movement is positively valued if it preserves or reformulates people's connections to the city, the past and society (Figure 4).

This study considers aesthetics as a way of relating between human beings and the city. It evaluates movement oriented aesthetics on a sub-personal and interpersonal scale. The capacities of all components considered as social entities can enable movement. We as the producers of knowledge also have characteristics and capacities (DeLanda, 2013). First, these capacities will emerge in the analysis of sub-personal scale components. Sub-personal components (impressions, ideas,

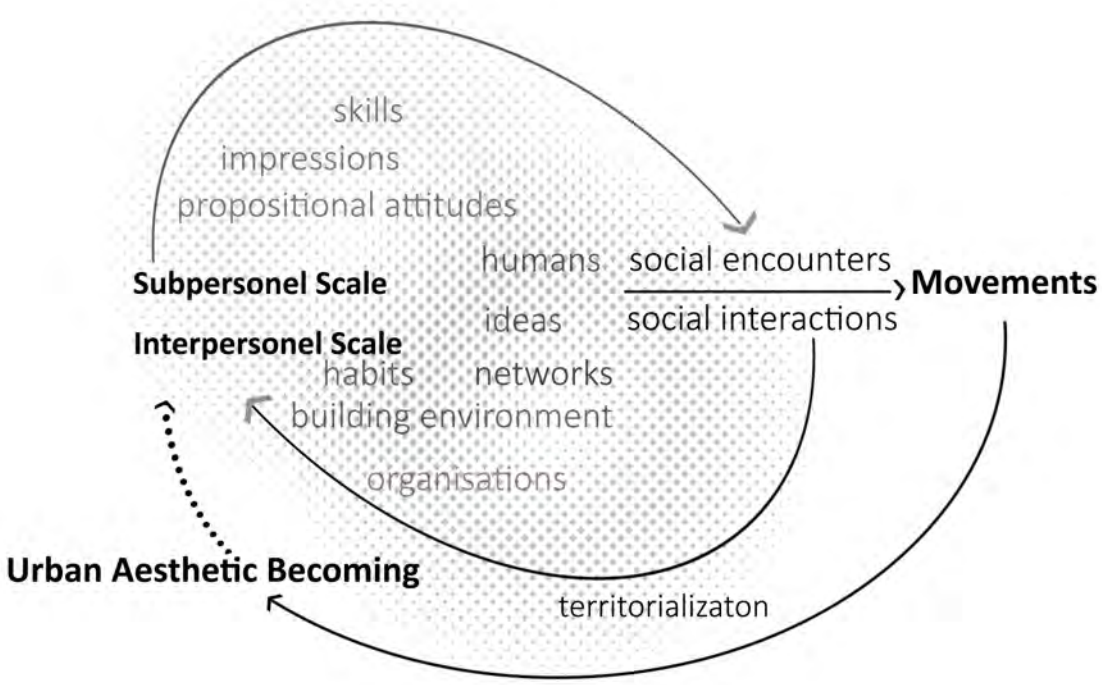

Figure 4. *Urban aesthetic becoming through movement.*

propositional attitudes, habits, skills etc.) influence participation and social routine. Second one is the capacities of the components of people, networks and organizations on an interpersonal scale. Movement of the human body determines these capacities. Movement is really about how we relate to the world around us. It arising from the capacities of bodies and space can be interpreted as a property of the built environment.

It is in the priority given to movement that this perspective contribute to critical theory. According to Arnold Berleant (2009), whose work on contemporary environmental aesthetic theory, movement is a critical component of architecture. In addition, a critical aspect is that DeLanda's perspective is associated with aesthetics. This approach "revive critical theories, inasmuch as they rely on aesthetics as a field that allows for a critical distance toward market commodification" (Rosa et al., 2021, p.14).

4. Looking at urban aesthetics through 'movement [2]' in SANART publication

Many artistic activities took place in the multicultural environment of the 1990s in Turkey. Founded in Ankara in 1991 under the leadership of Jale Erzen, SANART stands out for its practice and activities, as well as its regular discussions based on intercultural and interdisciplinary theoretical debates. Both the archive of aesthetic discourse in Turkey and the excavation field of this study are the proceeding books of these conferences and symposiums. This study has focused on symposiums and congresses held by SANART from the beginning of the 21st century to the present day, as the archive area of the research. In 2000, 'Art and Science Symposium', in 2001 'Art and Aesthetics Symposium', in 2002 'Art and Social Engagement Symposium', in 2003 '80th Year of the Republic of Turkey Culture Symposium', in 2005 'Modern Art and Islamic Aesthetics Symposium in Turkey', in 2006 'Turkey Aesthetics Congress', in 2007 '17th International Aesthetics Congress', in 2017 'Urban Aesthetics' and in 2019 '3rd Turkey Aesthetics Congress'. In 2013 SANART organized the 2nd Turkish Aesthetics Congress, but the proceedings of this congress have not yet published.

The archive contains research papers on aesthetics from various disciplines such as art, philosophy, city, space, music, painting, literature and history. The SANART archive can also provide a

rich basis for other studies at different scales and perspectives. This research, however, is an analysis of discourses of urban aesthetics. SANART's founder, Jale Erzen, is an important actor in this study with her position at the intersection of art and architecture. According to Erzen (2007a), although the fields of environment, city and architecture have their own specificities, it is not correct to separate them from each other in terms of experience. The archival area of this study consists of research articles after the year 2000 that include the expressions urban, environmental and architectural aesthetics either thematically or in the title of the paper. In the 2006 congress publication, Jale Erzen's (Environmental Aesthetics) and Çağatay Keskinok's (On Urban Aesthetics) discourses, and in the 2007 congress publication, Margitta Buchert's (Actuating; Koolhaas' Urban Aesthetics) paper are in this study. In 2017, the symposium "Urban Aesthetics" focused directly on the aesthetics of the city. In the proceedings book of the symposium, the discourses of all the names under the themes of urban and environmental aesthetics is in the selection of this study; Anlı Ataöv (Environmental Aesthetics: From a Life Perspective), Joseph Margolis (What is a city), Vlademir Maco (City and perception of fragmented reality: Aesthetic Issues), Jale Erzen (Human Space in Urban Geography), Miodrac Suvakovic (Fundamental Issues and Indices-Aesthetics of IDEAL Architecture) and Kemal Reha Kavas (Reading "Non-Places" as Spaces of Environmental Anesthesia). The other texts and themes are excluded from the archive because they deal with representations and forms of the city. Although there are other texts that focus on the themes of the city and aesthetics in terms of content, for the purposes of this study the scope of analysis is limited to titles and themes. The study of urban, environmental and architectural aesthetics by researchers from different disciplines will provide an opportunity to examine the urban aesthetics from a comprehensive framework.

Chapter 3 used DeLanda's social philosophy to construct a new aesthetic approach. On the other hand, SANART's approach to sociality also produces a discourse of discovery. The prefaces to the early years of SANART emphasized that art would strengthen the relationship between art and society by stimulating society and finding solutions to social problems. In the years just before 2000, according to Erzen, the belief that art would make a difference and solve social problems was forgotten. In the following years, sociality manifested itself embedded in publications. According to Keskinok (2007), the introduction of aesthetics into everyday life is a necessary step for social development. This situation can be interpreted as follows: Aesthetics is no longer a tool for sociality because the concepts of the social and aesthetics are in an integrated relationship. This makes the idea we have modeled above even more meaningful.

Aesthetic concept has plural conceptualizations from different perspectives. According to Erzen (2007a), aesthetics is a means of dialogue and sharing. Urban aesthetics is an issue of social encounter and relationship, and from this point of view, it leads to interactions that create to new and unprecedented opportunities (Erzen, 2003). Today, cities are facing a range of problems due to globalization, privatization policies, uncontrolled migration and environmental destruction. In Turkey, especially in Istanbul, the process of urban change is taking place rapidly due to social and environmental crises. The acceleration of change in urban form typically implies break with tradition and thus with deliberate design (DeLanda, 2009a, p.169). This situation goes beyond the positive limits of the movement. It affects the relationship between the city and its inhabitants. DeLanda defines social assemblage and Erzen defines the aesthetic relations through the encounter of experiences and proximity. Reading the aesthetic thought interpreted from DeLanda's perspective through the SANART archive offers new perspectives by recalling what is forgotten in today's crisis environment.

Writers have defined urban, environmental, or architectural aesthetics by drawing attention on everyday experiences. This study analyzes selected

research papers based on movement. It categorizes these analyses using sub-personal and interpersonal scale expressions borrowed from DeLanda's perspective. Although the sub-personal scale initiates participation in the city, at the end of the process it is characterized by its position, which ensures the stability of the routine. Therefore, movements within the interpersonal scale will be the first evaluation.

4.1. Walking in the city as a movement of urban participation

According to Erzen (2019), any artistic environment doesn't activate people's physical participation as much as the city. The mass, smells, gait, attitudes toward others are perceptual issues, but all situations such as the speed and sound of vehicles affect the aesthetic experience of the city. According to Erzen (2007a), as long as people perceive urban mobility as driving from one shopping center to another as fast as possible, the city will lose all its positive environment. People become less dependent on each other through social fluidity. According to DeLanda (2009a), transportation and communication technologies deterritorialize by reducing co-presence.

Walking movement, which brings the body and the city together, provides encounters and interactions. This movement is one of the most important ways of thinking critically, exploring and relating to the city. Erzen (2021b) aims to understand this interrelationship by seeing urban spaces in dialogue with humans, animals and plants. According to her, this relationship can only be achieved by walking in a relaxed and unhurried manner, often without a specific goal. The experience of walking is simultaneously about the spatial scope of architectural, urban, political and social space (Erzen, 2021b). The assemblages in the city are the product of this process. Margitta Buchert (2007) argues that urban practice as social interaction is crucial for the activation of perception. According to Buchert (2007), imaginary and real circulations intertwine, and the interrelation of internal and external perception creates urban aesthetics. From this perspective, the act of walking provides interaction on both a sub-personal and interpersonal scale.

Walking, which can be considered as an act of participation in the city, is important for encounters. As we walk down the street, we communicate with others. We can give way to them, walk alongside them, pass by them, and in many other ways (Erzen, 2021b). This also creates a social assemblages from DeLanda's perspective. The essential material component here is the coexistence and conversation of human bodies in close proximity to each other. According to Erzen (2007a), we feel happy in this city when the person next to us at the bus stop can open his umbrella when it rains and come over and take us under his umbrella or when the owner of the coffee shop we stop at on our way to work in the morning can say a few nice words to us. If the built environment can help establish a relationship with social entities, then we can talk about urban aesthetics. Erzen (2007a) says that walking comfortably on the sidewalks, looking at the buildings, finding your way easily, and being able to sit down and have a glass of water or coffee when you are tired makes a city beautiful.

DeLanda (2009a) argues that spatial entities tend to relate to each other in a simple way. Pathways must be interconnected to allow the circulation of human bodies and various other entities. According to Erzen (2007a), the most beautiful object in the world that prevents people from waiting or walking on the sidewalk is never aesthetic. While one of the non-formal properties of urban aesthetics is the act of walking, one of its formal properties is urban spaces that enable circulation. DeLanda (2009b) considers a piece of ground as something that affords the opportunity to walk. Urban spaces both have the potential to enable encounters and are one of the social entities encountered. The spaces that enable circulation within the city should allow for potential encounters and interactions. From the baby's stroller to the dog on the street, from the rainwater to the tree on the corner, there is a need for urban spaces that offer movement and circulation opportunities for all human and non-human beings.

4.2. Publicness and setting up small markets as organizational movements

Çağatay Keskinok (2007, p.79) asserts that areas that do not create common spaces and do not promote pedestrian circulation will not have the publicness that is the expectation of urbanism. Here, publicness is the name of a movement. According to Keskinok (2007), urban aesthetics is related to publicness in the sense that it emphasizes social and public benefits. Just as the social includes human and non-human beings, so the definition of the public also needs to be reconsidered. By strengthening the dialogue between people and social entities, publicness enables the production of a common language and context. These assemblages are the result of the social construction of space. Anlı Ataöv (2021) argues that this production occurs through mental participation, interaction, construction and reconstruction according to one's instinctive and emotional states. Here, too, we can read that the interaction at the subpersonal scale triggers movement at the interpersonal scale.

Social assemblages do not neglect conflict. According to DeLanda (2009a), social conflict implies the existence of interpersonal networks. This process can lead to the formation of larger assemblages, such as political organizations. At this point, it is important to create spaces that allow for various movements of publicness. Vlademir Maco (2021b) argues that parking spaces can also become public spaces through the activity of social groups. In the light of this discourse, we can say that the publicity movement is not limited to public squares, but spread its borders to the entire city. According to Ataöv (2021), it is insufficient to explain the experience and process if the meaning of the spaces is associated with their formal beauty or artistic quality. Here one can read DeLanda's distinction between material and expressive roles, which he proposes for the properties of the components in an assemblage. Through all these discourses, the movement of urban space, which plays a material role, can also be described in terms of the production of publicness.

Urban public spaces that produce political organizations can also produce economic and commercial organizations. One of these organizations is the market places in the city. Erzen (2021b) notes that small markets, located in small neighborhoods and on street corners, bring people together and enable social communication. Margolis (2021) also identifies local and regional markets as places that respond to encounters and social needs. Although markets sometimes create chaos in the city, they are a way of resisting spatial and social alienation. Markets as assemblages' movements allow for territorialization. Marketplaces are places where people with weak connections to each other can share information (DeLanda, 2009a). Therefore, marketplaces, which provide an organization within the city, have effects that enable encounters and ensure belonging to the city.

4.3. A movement that reinforces the context: Dwelling

According to Kemal Reha Kavas (2021), urban aesthetics is a multi-dimensional environmental integration. Kavas analyzed the relationship between building and dwelling in the symposium 'Urban Aesthetics'. The verb to dwell, translated as to live, is associated with the sense-making process of generations with strong links to place. According to Margolis (2021), we know our world through the deepened practices we acquire by living in our cities and the spaces of our home culture. Margolis (2021), on the other hand, defines urban aesthetics in terms of 'lebensform', which he defines as a way of life or form. This concept, which includes the act of living, has commonalities with 'dwelling'. It encompasses practices shared by a nation, people or community. Both processes are the result of interactions at both the subpersonal and interpersonal scales.

Throughout the 20th century, the experience of space was deeply explored. Martin Heidegger, in his article 'Building Dwelling Thinking', read the relationship between building

and human through feeling, intimacy and connection (Sharr, 2017). While building is about construction, dwelling is about engaging with the context for human existence. It is in this context that one of the concepts used by DeLanda (2009a) to define the identity of the assemblage process, territorialization, can be read. Dwelling refers to processes of territorialization because it defines the boundaries of places and is a kind of stability. The relationship of the person to the place has been physically transformed into a movement, creating a social assemblage. Within the framework of the new aesthetic approach, 'dwelling' enters the realm of interaction and movements between social entities.

4.4. Sub-personal scale; internalizing, belonging and imagining

Erzen (2007a) says that just looking at a square pool with flowers around it, which we cannot get close to, has nothing to do with urban aesthetics. The actions of seeing, watching or looking affect urban aesthetics to the extent that they enable movement. According to Buchert (2007), urban aesthetics is the result of actuating the observer. Processes such as "encountering nature by examining the life of trees throughout the seasons, seeing the growth of plants near pedestrian paths, listening to birdsong in a park, watching the colors of the sky and clouds" produce an infinite variety of assemblages (Erzen, 2021a, p.5). This means a new relationship with time, nature and the environment. In order to feel that we really live in the city, we need to be able to internalize it (Erzen, 2003). According to DeLanda (2009a); inner processes are simply interactions between the component parts of an entity (p.21). A biological creature, in the words of DeLanda (2009c), is internally defined by many complex series of events. External causes influence this series of events. External causes act as triggers and catalysts (DeLanda, 2009a). The city must also live within us so that social assemblages can be possible. This is also the territorialization of space on a subpersonal scale. Emotional interactions and assemblages at the sub-personal scale make interpersonal and larger scale interactions possible.

Internalizing, in the most general sense, means that the individual adopts the value through socializing. This is important for the stability of the process in social assemblages within the city. It also blurs the boundaries between social entities. Erzen (2007a) questions whether the boundaries between the environment and me, or me and the other, are clearly defined. "The environment, like the other, is a phenomenon that begins in me, and I am a phenomenon that begins with the environment," emphasising the complex intertwined relationships. Things outside us are not an object of observation. The importance of internalization in social urban aesthetics should be recalled. Hasan Bülent Kahraman (2007) argues that what is important now is not to externalize the inside, but to internalize the outside and, as a result of integration, to eliminate the difference between the inside and the outside. According to Kahraman (2007), it is the urban space that needs to be internalized. In a world where everything is externalized, the process of internalization becomes more important.

According to DeLanda, a movement generates a reciprocal movement. The reciprocal movement of internalization can be considered as 'belonging'. Urban aesthetics is primarily the result of practices that make us feel that we belong in that city, that we feel comfortable, safe and even pretty there (Erzen, 2007a). Internalization and belonging are based on routine actions and are a product of the territorialization process. DeLanda (2013) argues that cities cannot exist without minds. Mako (2021) argues that imagination in the production of space can improve everyday life. Cities are not only living spaces in the physical sense, but also places where imagination is represented. According to Suvakovic (2021), architecture is not always considered as the practice of building things, but as the practice of 'discovering' and 'imagining' (Suvakovic, 2021). This process is formless in that it is not the production of objects, but it is the aesthetics of

movement in that it contains a multitude of potential possibilities.

The processes and movements of walking, publicness, setting up small markets, dwelling, internalizing, belonging and imagining have emerged from selected texts in SANART publications. It is possible to multiply the variety of these movements even more. For example, according to Erzen (2007a), not looking at the ground while walking, looking up at the sky, being able to explore the city easily, having a coffee at a reasonable price, and greetings make a city beautiful. Not knowing where to throw the garbage, where people can sit and rest, or where they can have a conversation makes the city less of a friendly place (Erzen, 2021b). For urban aesthetics defined by current approaches, it is important to explore movements and to determine new design methods through movements.

5. Discussion

Environmental and social crises, free market economy, capitalism, neoliberal policies have deeply affected the built environment both locally and globally. The disregard of critical thinking with the crises has caused the city to be interpreted through form and performance. This study has problematized the relationship between human and the built environment. It has reconsidered the relationship between them through aesthetics. Contemporary approaches that focus on ambiguous, porous, relational boundaries and social processes have opened new perspectives for a holistic aesthetic conception. This study have conceptualized the concepts through the city from the perspective of Manuel DeLanda, who has had a significant impact on urban and architectural discourse. It has analyzed selected articles from SANART publications with concepts from DeLanda's perspective. It has produced alternative perspectives on urban, spatial and social aspects of the present and the future, based on the SANART archive together with contemporary approaches.

The second chapter asked how the built environment and aesthetics have been evaluated in the postcritical period. Discourses on space highlighted that the built environment is interpreted through form and performance. Aesthetic research has told us that contemporary aesthetics is related to all kinds of experiences. Critique is crucial to the context of urban aesthetic experience. The multiplying of postcritical discourses coincides with the turn of aesthetics toward the aesthetics of all kinds of experience. Although it requires a more in-depth research, it is possible to interpret aesthetic discourse as filling the void left by critique. Expanding its boundaries, aesthetics is now a field that relates all concepts, situations and disciplines. Today, when everything is more interconnected, posthuman and peripheral approaches have offered perspectives for discovering close relations. This study has argued that a holistic aesthetic thought would emerge from new approaches. The next chapter has explored the relationship between the built environment and human beings from the perspective of Manuel DeLanda.

The third chapter used DeLanda's terminology to explore the contemporary aesthetic approach to the built environment. There was a need for a concept that combined subject and object. This study used DeLanda's term 'social entities' to replace the dichotomy of subject and object. This situation enables the aesthetic subject and object to together be evaluated as social entities. DeLanda analyzed the discourse of sociality through scale and process. In order to engage with the city, this study looked at the subpersonal and interpersonal scale. Various encounters and interactions within these scales affect the urban experience process. From DeLanda's perspective, movement within the city is the result of the capacities of bodies and spaces. In this study, movement is a property of the built environment. Movement is positive to the extent that it strengthens people's connection to the city, the past and society through the process of aesthetic experience. For this reason, the study examined the archival space within SANART publications, focusing on movement on a subpersonal and interpersonal scale.

The relationship between aesthetics and movement has recently been quite common in academic studies. For example, the theme of the 1995 International Congress on Aesthetics was 'aesthetic in practice', and in 2013 it was 'aesthetic in action'. In 2017, in collaboration with Aalto and Helsinki Universities, a group of planning theorists and urban planners developed the research project 'Urban Aesthetics in Motion: Bridging the Gap Between Philosophical Aesthetics and Urban Mobility Futures (UrAMo)'. This research project focuses on the aesthetics of mobility within a theoretical framework. It is possible to increase the number of studies within this scope. The difference of this study from all these studies is that it reads the movement through the discourses of Manuel DeLanda and attempts to reveal urban movements in an aesthetic sense.

In the fourth chapter, this study analyzed the aesthetic approach from DeLanda's perspective in combination with the archive identified in SANART publications. Other discourses to be determined within SANART can offer various perspectives on aesthetics. However, this study has identified articles with titles and themes of urban, environmental and architectural aesthetics as the archive area. Social entities within the city offer potential movements such as "walking, publicness, setting up small markets, dwelling, internalizing, belonging, imagining, etc." These are all simple but comprehensive strategies for developing urban aesthetics that fall within the realm of the social and the commons.

The first potential area in urban aesthetics is walking as a movement of participation in the city. In the 20th century, Baudelaire and Benjamin articulated walking in the city as a new way of living, and today, post-growth approaches re-emphasize this movement. Approaches such as 'walkable cities' and 'the 15 minute city' are alternative current urban discourses. This study, on the other hand, considers walking for urban aesthetics in terms of enabling new encounters and discoveries. The process of walking assembles the social in urban space in an expanded sense. It is important to remember that walking is not just a human activity. Other movements triggered by the walking movement enable interaction between humans and non-humans. However, walking or circulation also has important impacts on urban, environmental and natural crises. For example, rainwater that cannot infiltrate into the soil causes floods and inundation of habitats. Projects built on bird migration routes cause various ecological problems. To build a collaborative partnership that encompasses the movement, the city must allow the free movement of all entities.

One of the interactions that the city makes possible in everyday life are organizations in DeLanda's terminology. In addition to the movements of 'publicness and setting up small markets' that emerged within SANART publications, the city allows for a wide variety of organizations. This study understands publicness as a movement. It is important to create spaces within the city that allow for acts of publicness. The blurring of borders has also expanded the boundaries of the public sphere. At this point, a wall, an urban element or a tree can also enable the movement of publicness. Posthuman approaches have offered a new way to connect the subject to their place or well-being of an expanded sense of community, including environmental connections. Just as the social includes both human and non-human beings, publicness needs to be redefined. In addition to political and social organizations, economic and commercial organizations are also environments that enable interaction within the city. Places such as markets, festivals, fairgrounds are urban interaction spaces. It brings together not only people but various social entities.

Another potential movement emerging from SANART publications is 'dwelling'. Dwelling as a movement of strong connection with place is one of the concepts that has been revisited in various studies. In 2002 the Slovak Aesthetic Society called for a conference on 'Dwelling Aesthetics new paradigms and perspectives'. Their study is about analyzing how we learn to live in the context of the paradigm shifts of the posthuman age (Alison, 2022). Be-

longing and internalizing to the place where we live is the first stage of dwelling. Imagining is also a kind of internalization. The point I want to underline is that all these urban movements trigger and sustain interactions. While the walking routine triggers a sense of belonging to the city, it is also a result of belonging to the city. Or the publicness movement triggers different ways of imagining for the future while at the same time continuing the process of internalization. It is impossible to evaluate all these movements through a specific temporal order.

This article offers new encounters and new potentials for spatial disciplines. It is clear that looking at urban aesthetics from the perspective outlined above is only one of the new potential interpretations. The context of movement within the city can be further expanded. The first shelters started with movements such as digging, covering, covering, wrapping, painting. In the contemporary world, social, economic and political movements also involve space. Today, many cities such as Istanbul are experiencing processes that include various movements such as transformation, demolition and growth. It is important how these movements of the built environment affect the movement of social beings. All these movements within the city from the past to the present need to be re-examined from a critical perspective. These approaches can develop new design methods by keeping within the positive boundaries of the movement.

Urban aesthetics conceptualized through movement is both a new way of relating and a means of criticism against neoliberal policies. Another point I would like to underline is that while the movement gives urban aesthetics a critical character from a new perspective, aesthetics is also a critical field that determines the positive boundary of urban movements. The movement enables a broader sense of community beyond the benefit of a particular class. Aesthetics, on the other hand, addresses capitalist or neoliberal movements in the city from a political and critical perspective. In conclusion, today we need to engage with the critical and aesthetic movement of difference and plurality.

Endnotes

[1] The city contains a wide variety of human and non-human beings. Urban aesthetics is a larger field that also includes aesthetics of built environment.

[2] Movement refers to a change in position and location. It includes physical change as well as mental and emotional change. Action often requires a specific effort and intention. However, movement may not involve a specific goal and is influenced by external factors. For this reason, the term movement is used in this article.

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Laboratorization of time-space: An inquiry about the role of space in the control and reproduction of life

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Abstract
This paper displays the crucial role of space in conditioning both humans and nonhumans in the post-industrial era, situating itself at the crossroads of biopolitics, political philosophy and architectural theory. It argues that spatial conditioning, achieved through specific architectural designs, is a key strategy for colonizing living beings. The laboratory is analyzed as a spatial archetype where beings are extracted from natural habitats and subjected to processes that simulate life in artificial environments. In these environments, beings undergo ontological and epistemological restructuring, conditioned to ideal forms of objectivity and subjectivity via scientific methods, making the laboratory a practical apparatus for power. The study reviews the historical evolution of modern laboratories and their functioning as world-building environments. This foundation supports a comparative analysis of architectural cases designed for human and nonhuman beings, revealing connections in spatial planning, functionality, control strategies, safety protocols, and performance objectives that influence research outcomes. The investigation shows that various spaces—such as educational institutions, agricultural lands, botanical gardens, greenhouses and animal farms—mirror laboratory functions, actively manipulating the relationships between time and space for their inhabitants. Ultimately, this research contributes to the existing literature by creating a theoretical framework for future research on the relationship between space and power, integrating the experiences of nonhuman beings into architectural theory studies that have traditionally focused on human perspectives.

Keywords
Biopolitics, Condition-space, Control, Laboratory, Nonhuman spaces.

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1. Introduction

Regarding capitalist relations of production, the earth is valued solely as an economic asset. Capitalism is a system not only based on exploiting nature, colonies, and laborers (Hudson, 2021) but also dependent on the earth with all its living and nonliving beings for accumulation (Moore, 2015; Kenney-Lazar & Kay, 2017; Haraway, 2008). Whether human, animal, plant, water, forest, mine, or soil, all beings are transformed into a performative (Lyotard, 1984) element, and life is controlled and continuously reproduced [1].

One of the main arguments of this investigation posits that the fundamental mechanism of reproduction operates through the exertion of control over entities, with the subsequent extraction of utility from them. This process necessitates the establishment of delineated spaces replete with specific regulations and conditions, a domain in which architecture plays a pivotal role. As a discipline engaged in generating spatial constructs, architecture has long been instrumental in facilitating capitalist modes of production and the consolidation of power (Tafuri, 1973; Harvey, 1985, 2001; Foucault, 1995, 2003; Lefebvre, 1991). Beings are systematically disciplined, conditioned, and reproduced by orchestrating spatial arrangements, encompassing the micro-scale of individual buildings and the macro-scale of urban and global landscapes. Accordantly, this study aims to reveal the role of space in conditioning human and nonhuman beings to become more beneficial subjects and objects for power and capital.

The primary strategy for getting 'performance' from living beings is 'conditioning.' To govern humans and nonhumans, they must conform to the forms of subjectivity or objectivity determined by power. For instance, beings are conditioned to be students in school; workers in the factory; soldiers in the barracks; refugees in the camp; parents or children at home; crops in the field; livestocks on the farm; ores, dams, or power plants on the earth. Domestication, confinement, taming, discipline, training, experimentation, and pacification are a variety of techniques of conditioning human and nonhuman beings to make them fit for use/production, and space plays a critical role in all of them.

In order to understand how space is instrumentalized in the conditioning of beings, the concept of biopolitics from critical theory and political philosophy offers an essential ground for discussion. The concept of biopolitics, which is a combination of the Greek words bios (life) and politikos (politics), includes policies related to the control and reproduction of life. Since the biopolitics debates range from the human body to the animal body, from a plant to a mine, and from living labor to immaterial labor, the concept has a rich repertoire in different scales. This breadth of application underscores the concept's versatility and critical capacity for interrogating various focal points of life's politicization (Lemke, 2011).

The concept of biopolitics was first used by Foucault and is considered on two axes: the discipline of human beings individually and the policies related to the governance of the population. After Foucault, the concept of biopolitics, to which many thinkers from various fields such as sociology, philosophy, medicine, economy, law, geography and architecture have contributed, maintains its currency and contributes to many theoretical discussions (Foucault, 2000,2003; Agamben, 1998; Hardt & Negri, 2000,2004; Haraway, 1991; Rabinow, 1992; Fehér & Heller, 1994; Masters, 2001; Fassin, 2001; Nancy, 2002; Braun, 2007; Esposito, 2008).

In the realm of architectural theory, there is a discernible inclination to engage with the concept of urban space creation through a dialogue that encompasses critical notions such as the 'production of space,' 'right to the city,' 'everyday life,' and 'urbanization of capital.' These discussions are notably propelled by the theoretical frameworks of Lefebvre and Harvey, which are deeply rooted in the Marxist political economy. However, the discourse on space and biopolitics predominantly draws upon the intellectual trajectories of Foucault and Agamben. Foucault's theories are particularly influential in examining disciplinary spa-

ces that intersect with the governance of individuals and the broader debates on urban planning and population management (Wallenstein, 2009; Adams, 2014). Agamben's work, conversely, is frequently invoked in contemporary discussions surrounding the notion of camps, especially within the context of refugee debates. Despite the potential to explore urban transformation practices—ranging from modifications in zoning laws to phenomena such as gentrification, the emergence of ghettos, mega-projects, and the dichotomy of production and consumption spaces—through the lens of biopolitics, this avenue remains largely underexplored within the academic literature.

The prevailing discourse within the literature on architecture and biopolitics focuses primarily on human existence. However, the nexus between biopolitics and spatial organization transcends the confines of human life to envelop a broader spectrum of living entities, including nonhuman organisms. For example, a dam is constructed considering the body and movement of water. Greenhouses and botanical gardens are organized according to the bodies of the plants to be grown in them, and farms are according to the bodies of animals. Although all these productions are not included in the anthropomorphic jargon of architecture, they use architectural techniques and methods. The manipulation and organization of space thus play a pivotal role in directing and constraining the movements and behaviors of human and nonhuman life forms. By delving into the implications of spatial production on nonhuman entities, this study seeks to bridge the existing void in scholarly literature, advocating for a more inclusive examination that acknowledges the significance of nonhuman actors in the discourse on biopolitics and spatiality.

In this direction, the schools of thought of Michel Foucault and Donna Haraway constitute the two main axes of this theoretical perspective. This exploration critically engages with Foucault's investigation into how spatial dynamics are instrumental in the economization of human subjects, alongside Haraway's inquiry into the spatial conditioning of nonhumans towards specific forms of objectivity. Central to this discourse is examining the 'laboratory' as a quintessential model of spatial conditioning, prompting a rigorous historical analysis of its genesis and subsequent societal transformations.

This scholarly endeavor elucidates the laboratory's pivotal role as a conditioning-space, further extending the perspective to include various everyday structures that embody laboratory-like characteristics. The discourse involves a comparative examination of contemporary architectural instances utilized by both human and nonhuman entities in daily life. Such comparative analyses are indispensable, shedding light on the broader mechanisms through which spaces function as instrumental tools in controlling and reproducing beings. Consequently, this study lays a robust theoretical groundwork for ensuing research focused on the intersections of architecture, nonhumans, and biopolitics, contributing significantly to the academic discourse on space and its effects on beings.

2. Theoretical framework

While Foucault uses the concept of 'biopolitics' for the first time in the session titled "The Birth of Social Medicine" of the seminar series he gave in Brazil in 1974 (Foucault, 2000), he discusses the concept generally through two poles. The first is the "anatomo-politics of the human body" as a strategy that treats the body as a machine, taming it, increasing its abilities, revealing its potential, and developing its usefulness and obedience in parallel. The other pole is the "biopolitics of population" as a systematic system that controls and regulates birth and death rates, health level, life span, and all the conditions that will affect them by considering the body as a biological entity (Foucault, 2003).

On the other hand, Haraway extends Foucault's concept of biopolitics to include nonhuman animals and focuses on the problem of "reinventing nature." Haraway's examination transcends mere human-animal dichotomies, delving into the complex epistemologi-

cal and ontological demarcations that segregate humanity from nature, organic from mechanical, the natural from the cultural, the private realm from the public sphere, and gender distinctions between women and men. As a method for this, it uses a language loaded with metaphors and figures. The founding elements of this language are figures such as "cyborg, oncomouse, fetus, primate, and chutulu." Through these figures, Haraway questions biopolitical, biotechnological, and feminist theories (Haraway, 1991) while tracing a new world that resists the "informatics of domination" (Haraway, 1991), which she describes as a worldwide production/reproduction and communication system.

The discourse on biopolitics, initiated by Foucault and expanded upon by Haraway to encompass nonhumans, fundamentally grapples with the mechanisms of control and conditioning exercised over beings. This conditioning dynamic sometimes aligns with centralized authoritarian powers; at other times, it corresponds with neoliberal governance and capitalist modes of production. For Foucault, the epitome of this conditioning arena is represented by the Panopticon [2] designed by Bentham (1785) , a metaphorical and physical structure of omnipresent surveillance (Foucault, 1995), whereas Haraway situates the laboratory as the contemporary locus of such biopolitical exercises (Haraway, 1991; 2008).

To validate the proposed hypothesis, the research adopts a dual-methodological framework. Initially, a retrospective analysis delineates the emergence and spatial dynamics of the laboratory as a site of control. Subsequently, a comparative examination elucidates the characteristics that define the laboratory, juxtaposing spaces designed for human and nonhuman beings.

2.1. The birth of the laboratory

The laboratory first appeared in the 17th century. In the European civilization, scientific pursuits and associated experimental techniques gained popularity by the middle of the 17th century. For instance, in England, the budding "laboratory" of the Royal Society [3] and other "experimental" locations create what society eagerly seeks. According to Shapin and Schaffer (1985), the legitimacy of the experimental activity and trust in the laboratory and scientific studies are established when these experiments can effectively respond to expectations. Thus, the demands expected from the experimental community gradually spread to the society's economic, political, religious, and cultural activities. For instance, army artillerymen once approached physicists at the Royal Society with their application issues to improve their artillery's effectiveness. Brewers would consult chemists for more reliable beer, much as surgeons resorted to mechanical philosophers for a theoretical framework to explain fire behavior. As a result, the experimental laboratory is today recognized as a setting where practical knowledge is generated (Shapin & Schaffer, 1985).

According to Shapin and Schaffer, a laboratory is a performance setting where beings undergo checks and tests to generate new knowledge and objectivity. These studies have been carried out with a display system in full view of the public, and nonhuman beings, as well as machines, plants, and minerals, have been investigated and evaluated from various angles. One of these academic tests is Robert Boyle's Air Pump. In their seminal work, Leviathan and the Air Pump (1985), the authors analyze the historical significance of experiments in producing scientific knowledge. During this process, they follow Robert Boyle's usage of the air pump and pneumatics research. The most crucial advantage of Boyle's air pump is that, thanks to the transparency of the glass, it is "insulated from external conditions," and the experiments under control can be easily observed.

According to Haraway, another essential feature of Boyle's open laboratory is that it develops as a controlled public space that determines in detail who can legitimately stay there (Shapin & Schaffer, 1985; cited in Haraway, 2008). Shapin & Schafer (1985) emphasize that this newly emerging laboratory has become a limited public space. When someone wants to experiment, they come to this area and work with

different people, or when someone wants to see new phenomena created through experiments, they come to this area and observe with different people (Shapin & Schaffer, 1985).

Thus, the laboratory is a disciplinary space where authorized persons collectively control experimental, discursive, and social practices. At the same time, it has come to the forefront as a place where more reliable information is produced rather than simple observations of nature can be made. Thus, since the 17th century, witnessing has gradually ceased to be a subjective evaluation made by a selected group of people and assumed an epistemological identity established through various experiments(Shapin & Schafer, 1985).

According to Haraway, the subjects of scientific experimentation, or "those who can quietly disappear," have gained the ability to witness rather than appear to be a (nonhuman) spectator since Boyle's time. The laboratory, which was designed as a location kept under strict "control," was converted into a theater of public persuasion (Haraway, 2008). In this respect, the laboratory serves as a modest witness, witnessing the reproduction of beings. One of these beings, OncoMouse™, is one of the essential figures of the Haraway ontology. OncoMouse™ was the first transgenic animal produced by researchers at Harvard Medical School in the early 1980s. This laboratory mouse, genetically modified by Harvard University's Philip Leder and Timothy Stewart by transferring an oncogene that can trigger the growth of tumors, has been used to advance cancer research (National Museum of American History, n.d.). It lives in a box miming the air pump chamber in Robert Boyle's house in 17th-century England. According to Haraway, the nature of these small animals is recreated here (Haraway, 2008).

The laboratory thus becomes a performance machine in which technoscience conditions the vital into specific forms of objectivity by isolating the vital from its existential environment. In terms of the realization of the actions of biotechnologies, space can also be considered a modest witness since the laboratory witnesses the process, like Boyle's Air Pump, as a specialized place/volume where epistemological confinement and material reproduction occur.

On the other hand, Shapin & Schafer (1985) argue that the laboratory is also a helpful device for constructing a model of a moral citizen. First, representatives of the Royal Society present themselves as a society that does not produce civil war and conflict seeks peace, and develops methods for effectively forming and maintaining consensus. The empiricist philosophers within them seek to produce knowledge that is ideal for society. Here is a concrete example of the ideology of organizing and maintaining a peaceful society between tyranny and radical individualism. Therefore, if political actors want to build such a society, they should visit the laboratory to observe how it works (Shapin & Schafer, 1985).

The laboratory concept extends into Foucault's (2003) critique of disciplinary society, where various spaces, including the laboratory, are instrumental in shaping individual and societal behaviors. Foucault discusses the "laboratorization" of space as key to controlling and producing subjectivities that align with societal norms. This is part of a broader strategy to regulate life processes and maintain population balance through mechanisms similar to those found in controlled environments, emphasizing the need for a societal "homeostasis". Foucault (1995) sees these practices as necessary for managing the biological aspects of human life, encompassing not just laboratories but also hospitals, prisons, schools, and other normative spaces.

> *"[…] the Panopticon was also a laboratory; it could be used as a machine to carry out experiments, to alter behaviour, to train or correct individuals. To experiment with medicines and monitor their effects. To try out different punishments on prisoners, according to their crimes and character, and to seek the most effective ones. To each different techniques simultaneously to the workers, to decide which is the best" (Foucault, 1995, pp. 203-204).*

Michel Foucault's analysis of the

Panopticon portrays it as a significant tool in understanding power dynamics, likening it to a "power laboratory" for experimenting on human behavior and control. This concept extends to institutions like hospitals and prisons, which, since their development in the 17th century, have functioned as disciplinary spaces akin to the Panopticon. Foucault argues that the emergence of these disciplinary spaces coincides with the birth of the laboratory, reflecting a broader historical shift in which disciplines began to exert a form of "general sovereignty" during the 17th and 18th centuries. These spaces function in such a way as to regulate the "anatomo-politics of the human body" on the one hand and the "biopolitics of the population" on the other. In other words, "individual discipline" is provided as a requirement of disciplinary power, and as a requirement of liberal governmentality, "individual self-government" is ensured (Foucault, 1995; 2003).

In the discourse on the anatomo-politics of the human body, a significant connection can be drawn to the disciplinary spaces within architecture. This intersection is notably explored by Wallenstein (2019), who integrates Michel Foucault's concept of biopolitics with architectural modernity, positing modern architecture as an integral component of the biopolitical apparatus. Wallenstein suggests a need to view the modern subject through a genealogical perspective and emphasizes understanding the panoptic principle as a 'diagram'—an abstraction with physical manifestations in various institutions like hospitals, prisons, and schools, where power is exercised in different forms.

Wallenstein (2019) delves into the symbiosis between architectural modernity and the organization and administration of life, alongside the generation of subjectivity, focusing on hospitals. He posits hospitals as 'laboratories' for experimentation with new concepts that eventually permeate the urban fabric. Such an association of hospitals as temporal and spatial 'laboratories' with the advent of modern architecture underscores the latter's evolution into a regulatory mechanism in life and human productivity, effectively transforming into a 'biopolitical machine.' As Wallenstein (2019) notes, this transformation parallels the decline in the relevance of classical architectural models in the latter half of the eighteenth century, marking the transition of architecture into a tool for "organizing, classifying, and managing space in its entirety." The laboratory is, therefore, one of the exemplary spaces of modernity, just like the factory, department store, and railway station (Galison & Caroline, 1999).

2.2. The laboratory as a conditioning-space

The retrospective analysis of the laboratory (Shapin & Schafer, 1985) and the discussions on biopolitics by Foucault (1995, 2003) and Haraway (1991, 2008, 2019) highlight the laboratory as a space for the control and reproduction of beings, evolving since the Middle Ages into a key site for scientific development and knowledge production across various domains like food, medicine, and agriculture. Haraway (2019) similarly states that scientists do not simply observe and experiment in the laboratory but also recreate a cell, for example, by observing, measuring, naming, and manipulating it. The laboratory is an artificial habitat where research and operations are conducted to adapt the beings processed to healthier, more practical, and more perfect forms using diverse scientific techniques. Within this framework, the scope of influence of the laboratory is expansive, extending from individual organisms to the entire planet and from singular buildings to urban conglomerates. This conceptualization of the laboratory underscores its role as a fundamental operational principle, one that has significantly shaped the functionality of numerous spaces within the contemporary world far beyond its tangible physical confines. For this reason, this study tried to reveal how the laboratory operates as a space. Such an inquiry is essential to determine the extent to which various modern spaces embody the characteristics of a laboratory, thereby influencing the conditioning and reproduction of

Table 1. *The properties of time-space in scientific laboratories, Boyle's Air Pump, Benham's Panopticon and Haraway's laboratory where live Oncomouse™.*

properties of time-space	Air Pump	Scientific laboratory	Panopticon	Animal testing laboratory
generic plan				
safety protocols	public	no unauthorised entry, dress code	no unauthorised entry, dress code	no unauthorised entry, dress code
atmosphere	sterilized, sanitary, luminous, silent	sterilized, sanitary, luminous, silent	silent, soft light, sanitary,	sterilized, sanitary, luminous, silent
enviromental control	neutral (temperature, damp, light)	neutral (temperature, damp, light)	neutral (temperature)	neutral (temperature, damp, light)
performance	manipulation(chemical, quantification, physical and genetic) , testing	manipulation(chemical , quantification, physical and genetic) , testing	discipline, chastening, taming	manipulation(genetic), quantification, testing, taming
mobile equipment	test fixture	table, test fixture, cabinet, shelf, lavabo etc.	bunk, bar, seat, wire fence, bowl	cage, bar, wire fence , bowl
time management	-	office hours, shift	shift	office hours, shift
classification	scientific	scientific,regulations	lawful, regulations	scientific,regulations

subjectivities within these spaces.

In this manuscript, we conceptualize the laboratory not merely as a physical locale for empirical inquiry but as a crucible wherein assets are optimized for performance. This understanding is elucidated by examining the etymology of the term 'laboratory.' Defined as "a room or building utilized for scientific research, experimentation, or testing" by the Oxford Learner's Dictionaries, the laboratory is a site where objects are subjected to the rigors of scientific postulates. The genesis of the word laboratory lies in the Latin labor, which encompasses meanings such as effort, work, pain, birth, and fatigue (Online Etymology Dictionary, n.d.). This etymological exploration reveals the intrinsic connection between the laboratory and labor—specifically, the performance context within this paper. Consequently, this paper argues that laboratories, and by extension, spaces that emulate the functionalities of laboratories, should be re-conceptualized as conditioning-spaces. These are arenas where entities are systematically conditioned towards varying degrees of subjectivity and objectivity to elicit performance.

The architecture and ethos of laboratory environments are defined by their functionality and purpose. Primarily, access is strictly regulated to authorized personnel, ensuring a controlled environment. Defined job roles and specific dress codes, including uniforms and protective gear, promote operational efficiency and safety. Control mechanisms in laboratories go beyond managing personnel to include the physical setup, like meticulously calibrated illumination for a shadow-free environment, enhancing specimen observation and experiment accuracy. Temperature regulation is also crucial, as even slight changes can affect living organisms' metabolic processes, especially microorganisms. Maintaining a constant, optimal temperature is essential for reliable experimental results and sample preservation. These practices highlight the importance of environmental control, safety protocols, and performance in creating a setting suited for high-precision scientific work (Hannaway, 1986; Crosland, 2005; Morris, 2021; Zhang & Cui, 2022).

The laboratory environment is quintessentially characterized by its hygienic and sterile conditions, meticulously maintained to minimize dirt and harmful microorganisms. Such an environment is paramount, as the nature of scientific inquiry necessitates a setting that is not only clean and orderly but also devoid of noise, thereby fostering an atmosphere conducive to focus and concentration. The spatial organization within the laboratory is methodically planned, delineating the precise placement of equipment and underscoring the significance of efficient time management during experimental procedures (Shapin,1988; Hannaway, 1986; Shackelford, 1993; Morris, 2021).

The laboratory design emphasizes white and non-reflective surfaces to minimize distractions and create optimal experiment conditions. This approach includes using neutral and transparent materials like white or glass for equipment and furniture, aiming for an unobtrusive, clean environment. The layout is carefully planned, with essential fixtures, equipment, and storage solutions strategically positioned to support experimental work (Hannaway, 1986; Shackelford; Morris, 2021). In summation, the laboratory functions as a crucible for constructing beings by establishing a controlled set-

ting that neutralizes external environmental conditions (Table 1).

While conditioning the existence on which it is processed according to scientific postulates, the condioning-space turns into a space that produces the prototype of beings and beneficial objects. This discourse posits that within the confines of such spaces, the essence of beings, abstracted from their intrinsic contexts, undergoes a metamorphosis into quantifiable outputs under the stewardship of accredited entities. The narrative extends to articulate that within these culturally constructed arenas, where the natural milieu is reconstituted through systematic conditioning, the subjects of such conditioning—ranging from microorganisms and botanical specimens to animals and humans—transmute into embodiments reflective of the epistemological foundations of their respective disciplinary domains.

The paper further argues that in contemporary settings, where conditioning of beings is prevalent, the dimension of time-space increasingly emulates the laboratory enviroment. To substantiate this thesis, the study undertakes a comparative analysis of various cases wherein both human and non-human entities are subjected to conditioning processes. The insights thus garnered furnish a theoretical scaffold pertinent to the discourse on the biopolitics of spatial domains, offering a foundational perspective for ensuing scholarly endeavors.

3. The comparative analysis and evaluation of condition-space cases

3.1. The cases of condition-space

In the conceptual framework posited by the study, "laboratorization" of the time-space emerges as contingent upon the imposition of varying degrees of subjectivity or objectivity upon the inhabitants therein. This "condition space" model extends beyond traditional labs to urban settings like homes, schools, hospitals and factories, as well as non-human environments such as zoos, animal shelters, animal farms, power farms, greenhouses, dams, and data centers. Each of these spaces embodies the condition-space model's principles, serving as sites for the observation, analysis, and modification of the living conditions of various entities, thereby underscoring the ubiquitous nature of the laboratorization phenomenon across both human and non-human spaces.

This study compares a school, a horse farm, an interspecies school, an animal shelter, and a greenhouse. Through this comparative analysis, the study investigates if laboratory settings create a dynamic of control that affects life across Earth. Thus, this research delves into how spatial arrangements and biopolitical agendas interact, enriching our understanding through the diverse perspectives of human, animal, and plant life.

3.1.1. Case I: Horse farm

The first illustrative instance scrutinized within this discourse is the Finca Ganadera Horse Farm, a project designed by OOIIO Architecture in Madrid. Built to train and care for racehorses and ride horses, this sports facility has been converted from a former cattle ranch in Castilla. Like the school space, which consists of classes and a garden that is surrounded by walls on all four sides, this horse farm consists of indoor and outdoor manege surrounded by walls on all four sides. One side of the open manage leans against the closed manage, while the existing structure in parallel surrounds the other three sides. Thus, the open management becomes a courtyard (OOIIO Architecture, n.d.).

In the project descriptions, the designers of OOIIO Architecture, the project owner, emphasize that every project detail is designed to make the horses as comfortable as possible. However, an equestrian area (manege) is ultimately a large area "fenced on all sides" with soft "floors" where riders and horses are trained. Concurrently, the design of the interior spaces is strategically oriented towards fostering optimal conditions for equine training, underscoring a holistic approach to architectural design that prioritizes the specific needs and welfare of horses (OOIIO Architecture, n.d.). In this sense, the spatial organization of the horse farm is designed as a perfor-

Figure 1. *Horse stables in Finca Ganadera, open-air manege and indoor manege (Image courtesy of OOIIO Architecture).*

Figure 2. *Horse stables in Finca Ganadera, horse riding hall. (Photographed by Josefotoinmo Courtesy of OOIIO Architecture).*

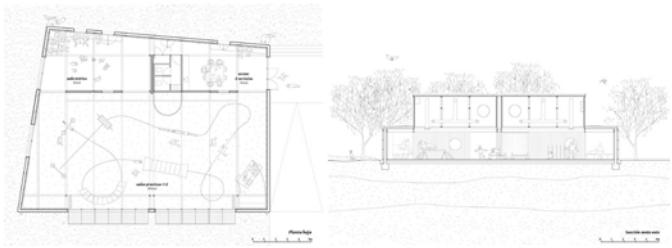

Figure 3. *The Educan School Dogs, Humans and Other Species, building ground floor plan and section (Image courtesy of Eeestudio + Lys Villalba).*

mance environment where foals are trained to become racehorses (Figure 1, Figure 2).

"The new building aims to protect against the weather, but it should also have a good lighting as neutral as possible. A lot of light but well distributed, shadows were not wanted that could distract or confuse the horses when jumping, so it is decided to open some skylights on the north deck, which fill the interior with natural light, without entering a single ray of sun." (OOIIO Architecture, n.d.).

3.1.2. Case II: Inter-species school

The Educan School, designed by Eeestudio + Lys Villalba, is located in a rural environment in Madrid that has been transformed in recent years by urban development and pesticide farming. The architects describe the building as an interspecies architecture where creatures such as humans, kestrels, swifts, sparrows, and dogs coexist. This integrative approach redefines the concept of learning spaces and posits the school as a microcosm of coexistence and mutual learning among different species (Eeestudio + Lys Villalba, n.d.).

The architects claim that they experiment with ways to improve the conditions of the ecosystem in this school, where dogs, other species, and humans are at the center of the design. For example, while the floor of a typical building is designed for the human body and its extension, the shoes in this school are designed for the paws and joints of dogs. Similarly, PTE-based synthetic turf approved for dog training was used in the training classrooms, and semi-polished aggregate concrete made of river pebbles was used in the classrooms (Eeestudio + Lys Villalba, n.d.). Ultimately, this school was designed to create ideal conditions for training its beings, just like on a horse farm or in a school (Figure 3, Figure 4).

"The average eye height drops from over a meter and a half to just half a meter. Interior openings are raised to heights of more than one meter to avoid doggy distractions; louvered window shutters shade the south facade, leaving enough space below for dog traffic to the outside, where rainwater from the roof is harvested in large troughs for dogs and birds" (Eeestudio + Lys Villalba, n.d.).

3.1.3. Case III: Animal refuge centre

The Animal Refuge Centre, designed by Arons en Gelauff Architecten, is the largest shelter in the Netherlands, and it was created by merging two animal shelters in Amsterdam. The architectural approach employed

by Arons en Gelauff Architecten adheres to a traditional comb model, characterized by a longitudinal service corridor flanked by kennels arranged perpendicularly, each separated by diminutive external spaces. A notable design feature is the inward orientation of the building, a deliberate decision aimed at mitigating the propagation of noise—precisely, the barking of dogs—to the surrounding neighborhood (Arons en Gelauff Architecten, n.d.).

The design integrates the service and kennel corridors into a singular, elongated structure that gracefully contours along the adjacent waterway, encapsulating the plot. The building consists of two inner courtyards as large playgrounds for the animals. The layout of the cell-like chambers and passageways facing the courtyard is prison-like, as even the architects acknowledge (Figure 5, Figure 6).

> *"This model is dominated by railings and the look of it closely resembles a prison."(Arons en Gelauff Architecten, n.d.).*

3.1.4. Case IV: Greenhouse

The Vertical Farm Beijing, designed by Van Bergen Kolpa Architects, was built on the campus of the Chinese Academy of Agricultural Sciences, China's innovation center for fruit and vegetable cultivation. The building focused on innovation and education, this three-story transparent building houses a series of innovative vertical cultivation (Van Bergen Kolpa Architects, n.d.). In recent years, vertical gardening has become an essential actor in the integration of vegetable and fruit growing into the inner and periphery of the city to provide access to fresh and healthy food for millions of people living in metropolises (Banerjee & Adenaeuer, 2014). This building considers this need and offers a productive environment for cultivating vegetables and fruits through climate control technologies (Figure 7).

Like most modern greenhouses, this building has a light-section steel structure and glass panels. The choice of materials and structure aims to combine natural light and ventilation with an artificial growing environment. The facility employs natural ventilation methods and evaporative cooling techniques while leveraging passive solar

Figure 4. *Interior of the Educan School, from dog training area (Image courtesy of Javier de Paz).*

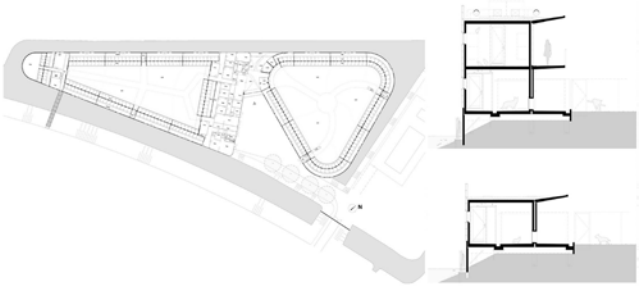

Figure 5. *The Animal Refuge Centre, building ground floor plan and sections (Image courtesy of Arons en Gelauff Architecten).*

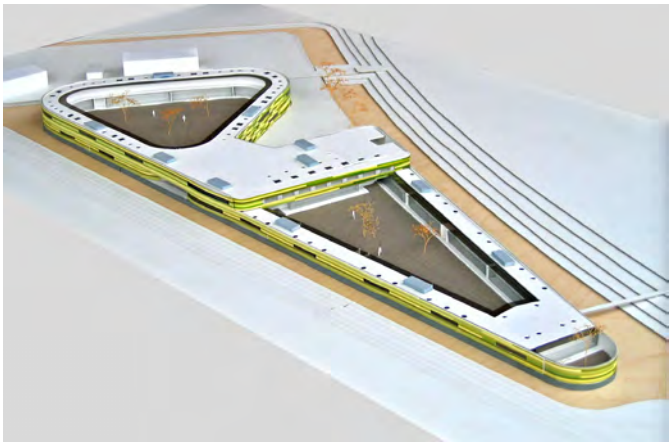

Figure 6. *The Animal Refuge Centre, Amsterdam (Image courtesy of Arons en Gelauff Architecten).*

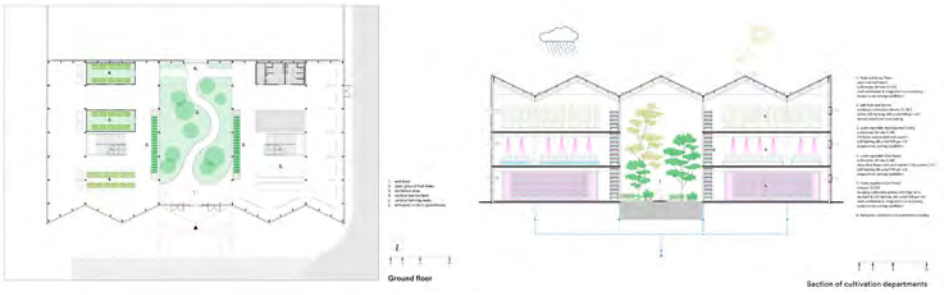

Figure 7. *the Vertical Farm Beijing, building ground floor plan and section (Image courtesy of Van Bergen Kolpa Architects).*

heating and the residual heat generated by LED lighting systems to maintain optimal temperatures (Van Bergen Kolpa Architects, n.d.). This building provides a control and reproduction environment to improve the performance of fruit and vegetable cultivation and also serves as part of people's educational experience (Figure 8).

"An educational route through the building leads visitors past fruit and berry trees in the open ground, automated vertical lettuce growing, fruit growing under LED light, and a rooftop greenhouse with tomato and cucumber growing under daylight" (Van Bergen Kolpa Architects, n.d.).

Figure 8. *Interior of the Vertical Farm Beijing (Image courtesy of Jin Weiqi).*

3.2. Comperative analysis and evaluation

This paper seeks to answer how space is instrumentalized in controlling and reproducing life through the theoretical framework of biopolitics. By focusing on Foucault and Haraway's discussions on biopolitics, the study tries to make visible the role of space in the conditioning of human and non-human beings. This approach was developed by analyzing the laboratory's historical process and spatial functioning as a spatial model of the act of conditioning. The conceptual framework from analysis formed the basis for the comparative analysis of various architectural cases. The study's findings show that there are various connections in the plan solution, spatial functioning and atmosphere, control strategies, spatial equipment, equipment and furniture utilization, time management, and performance goals of the buildings that will directly affect the research results.

The plan layout is mainly similar to the Panopticon in the examples of schools, horse farms, animal shelters, and interspecies schools. Inner courtyards, cell-shaped rooms, and corridors opening to the courtyard ensure movement control and create a sharp distinction between inside and outside. The open and closed management in the horse farm, the circulation with two separate corridors and an inner courtyard for cats and dogs in the animal shelter, the courtyard and classroom-corridor layout in the school, and the inside-outside separation in the interspecies school function similarly. The Animal Refuge Centre and Finca Ganadera Horse Farm, both featuring two separate inner courtyards and resembling the panoptic plan layout, are also located on the city's periphery, similar to many prisons.

In the analyzed cases, the space-performance relationship emerges in two manners. The first is related to the education of the beings, and the other is related to obtaining products or outputs from them. In this sense, living beings are conditioned to forms of subjectivity in the interspecies school, animal shelter, and horse farm. In contrast, in the greenhouse, they are conditioned to forms of objectivity to create pro-

ducts. The school is a laboratory where humans are conditioned to become doctors, engineers, lawyers, etc.; the horse farm is a laboratory where foals are conditioned to become racing or riding horses; the animal shelter is a laboratory where cats and dogs are conditioned to become vaccinated, harmless domestic pads; the interspecies school is a laboratory where humans and animals are conditioned to become educated, directable social beings.

The primary function of conditioning in all these spaces is taming. The most common social space of taming is the school, a place of discipline and education. A child enrolled in school is trained and conditioned to become an ordinary citizen—professional, married, and tax-paying—in the future. Through time-space management and epistemological conditioning, the school serves the purpose of producing subjectivity. Therefore, it is crucial to conform the "human mind and body" to the social order and to discipline them through educational circumstances (Foucault, 1995). Thus, the system's continuation is guaranteed.

"In the eighteenth century, 'rank' begins to define the great form of distribution of individuals in the educational order: rows or ranks of pupils in the class, corridors, courtyards; rank attributed to each pupil at the end of each examination; the rank he obtains from week to week, month to month, year to year; alignment of age groups, one after another; a succession of subjects taught and questions treated, according to an order of increasing difficulty. And, in this ensemble of compulsory alignments, each pupil, according to his age, his performance, his behaviour, occupies sometimes one rank, sometimes another…" (Foucault, 1995, pp. 146-147).

Foucault mentions that assigning students to specific classroom locations makes simultaneous supervision of each student possible. Thus, a new "learning time economy" is established. In this way, "[i]t made the educational space function like a learning machine, but also as a machine for supervising, hierarchizing, rewarding." (Foucault, 1995, p. 147). Therefore, it is possible to interpret the training process as a 'conditioning' process. So much so that the schools that ensure the maintenance of the system are people; they divide them into categories such as age, gender, class, continuity, discipline, attendance/absence, success/failure, and diploma. These assumptions are vital for accelerating and controlling the process of producing subjectivity.

In the delineated spaces that facilitate the perpetuation of societal norms and functions, demarcations are established based on the species, age, and gender of the entities within these confines. For instance, in educational institutions, students are segregated based on chronological age, ensuring a homogenous learning environment. Similarly, in equine breeding facilities, young horses are sorted by their physical development, precisely height, to tailor their care and training regimes. In the context of animal shelters, the categorization process considers both species and gender, allowing for a structured environment that can address the unique needs of each animal. This methodical approach to spatial organization underscores a broader strategy of managing and optimizing the interaction of diverse groups within controlled settings, thereby maintaining order and facilitating the smooth operation of these microcosms of society.

The other way to get asset performance is to turn them into efficient products. The greenhouse, analogous to the laboratory housing the OncoMouse™, emerges as a conditioned space where assets—specifically crops—are cultivated under optimal conditions. Therefore, Vertical Farm Beijing, like all other greenhouses, can be described as a second nature within nature. A perfect combination of architecture and technology, modern greenhouses are more than just places that provide climatic conditions for growing vegetables. Firstly, the greenhouse spatially separates the crop from the environment, thus providing some form of protection from the direct influence of external weather conditions. Therefore, producing crops that cannot be produced anywhere becomes possible. Secondly, greenhouse containment allows manipulation of the crop environment. Thus, it allows the

grower to direct the plantation in the desired way, and the spatial condition leads to higher yield (performance), longer production time, better quality, and less use of preservative chemicals. Thanks to this efficient use of space, greenhouse crops' added value (performance) per unit surface area is much higher than in open-field cultivation (Van Straten et al., 2011).

With today's technology, greenhouses have gradually turned into laboratories where the interior space can be 'manipulated' as desired by computerized control systems. For example, the temperature, humidity, and CO2 levels in the greenhouse are variables that affect the growth and development of plants, their metabolic activities, and the homogeneity of crops (Van Straten et al., 2011). Here, both various control technologies and genetic practices are used to idealize the structure of vegetables to be the most productive. Therefore, the greenhouse environment is a conditioned space where temperature, lighting, ventilation, humidity, irrigation, and nutrients are controlled in addition to the external climate.

When we look at other examples, we see that similar control methods are used. In the classrooms of a school space, having appropriate light, appropriate temperature, and appropriate air circulation is one of the conditions that enable students to concentrate on their education. It is understood from both the architects' statements and the project details that the use of light, heat, and sound control at a level does not distract the horses' attention in Finca Ganadera Horse Farm and the dogs in Education School during training.

These cases present the importance of creating 'neutral' conditions reminiscent of a laboratory setting to enhance performance and learning outcomes in both humans and animals. This comparative analysis illustrates the broad applicability and significance of environmental control in diverse settings, highlighting its role in optimizing conditions for agricultural productivity, educational efficacy, and the training of animals.

On the other hand, it is seen that the architectonic solutions alone are insufficient to realize the performances inside the condition space. In this sense, mobile equipment, time management, dress code, and entry-exit control are also effective in the conditioning of assets. For example, in a school divided into classes, mobile equipment such as desks, chairs, cupboards, lecterns, and blackboards are required for the lesson, which is one of the primary conditions of education. It is possible to see them as an interface that fixes the body's movement in the space divided into cells and connects it with limited information. Equipment such as the 'barrier,' 'table,' and 'chair' on the horse farm and inter-species school, the 'bunk bed' in prison, the 'stretcher' in the hospital, and the 'food bowl' in the animal refuge are the figures pointing to the conventions of the inside. These apparatuses, far from being mere functional items, are instrumental in reconstituting beings' nature, akin to the transformative experiments conducted on a laboratory table. This paper argues that integrating and strategically deploying such elements are essential for realizing space's full potential, extending the discourse beyond the architectural to encompass the operational and the experiential.

There are similar processes in terms of time management in these spaces. For example, a school space is based on rhythmic long-term fixation of the child's movement (lessons) and short-term release (recess), while a greenhouse frees the movement/body of the plant until it reaches a certain standard height. In a horse farm, the rider's and the horse's competence is tested against time according to criteria such as tracking, power, and running distances with a stopwatch. Furthermore, the spatial regulations within these environments highlight the restrictive access protocols akin to those in scientific laboratories. The imposition of specialized attire and identification protocols serves to demarcate the inhabitants of these spaces, further reinforcing the establishment of conditioned spaces as sites where distinct knowledge systems and ontological categories are crafted and maintained. Therefore, condition-spaces are places where the ontological and epistemological distinction is

constructed, as Haraway argues for the laboratory (Table 2).

Table 2. *The comparative analysis table of horse farm, school, interspecies school, animal shelter, and greenhouse samples in terms of time-space characteristics.*

Cases & properties of time-space	Condition-Space	School	Horse Farm	Intrr-species School	Animal Shelter	Greenhouse
Spatial diagram						
Safety protocols	no unauthorised entry, dress code	no unauthorised entry, dress code	no unauthorised entry, dress code	no unauthorised entry	no unauthorised entry, dress code	no unauthorised entry, dress code
Atmosphere	sterilized, sanitary, luminous, silent	sterilized, sanitary, luminous, silent	sterilized, sanitary, luminous, silent	sterilized, sanitary, luminous, silent	sterilized, sanitary, luminous, silent	sterilized, sanitary, luminous, silent
Environmental control	neutral (temperature, damp, light)	neutral (temperature, damp, light)	neutral (temperature, damp, light)	neutral (temperature, damp, light)	neutral (temperature, damp, light)	neutral (temperature, damp, light)
Performance	manipulation(chemical, quantification, physical and genetic) , testing	discipline, chastening, taming, education	discipline, chastening, taming, education	discipline, chastening, taming, education	discipline, chastening, taming	manipulation(chemical, quantification, physical and genetic) , testing, cultivating, gdo, irrigating,
Mobile equipment	table, test fixture, cabinet, shelf, lavabo etc.	table, cabinet, shelf, blackboard, rostrum etc.	barrier, fence, bowl	bunk, barrier, seat, fence, bowl	bunk, bar, seat, wire fence, bowl	bar, glass, soil, fertilizer, sprinkler
Time management	office hours, shift	office hours, shift	office hours, shift	office hours, shift	office hours, shift	office hours, shift
Classifcation	scientific,regulations	scientific,age, gender,	height, age, gender,breed	scientific, age, gender,breed	age, gender,breed	scientific,breed, genus

4. Discussion

When the condition-space examples analyzed were compared, it was seen that were used to condition a horse on a farm, a human in a school, a dog in a shelter, and a plant in a greenhouse similar spatial strategies. This observation suggests that the principles governing spatial arrangement and its influence on behavior extend across species and contexts, indicating a broader applicability and potential for expansion into additional domains. For instance, the domestic space serves as a critical site for the construction of subjectivities, such as parental and filial roles. Drawing on Aureli (2013), the household emerges not merely as a private sphere distinct from the public domain but rather as a complex economic and legal apparatus that shapes and regulates the social and economic interactions of modern state citizens. In this capacity, the domestic environment functions simultaneously as a site of subject formation, by delineating normative behaviors and anchoring individuals to prescribed social positions, and as a financial instrument, enabling the utilization of personal savings for investment purposes. This dual function underscores the multifaceted role of spatial configurations in mediating between the individual and the collective, the private and the public. Parallel to this, Wallenstein's analysis of hospital architecture as a 'healing machine' further illustrates the capacity of spatial arrangements to discipline and regulate behaviors. Through architectural strategies such as separation, circulation, surveillance, and categorization, modern architecture reveals its regulatory potential in shaping human experiences and enhancing productivity, affirming spatial design's critical role in the broader socio-economic and cultural landscape. The laboratory is, therefore, as Galison and Caroline (1999) express, a model space of modernity, just like the factory, the department store, and the railway station.

Consequently, contemporary architectural practices have evolved to function as a 'biopolitical machine,' actively participating in regulating and producing life. Through this lens, it becomes evident that spatial strategies across various settings serve functional purposes and play a fundamental role in constructing and regulating subjectivities, underscoring the intrinsic relationship between space and power dynamics in shaping human and non-human lives.

The primary maneuver in these spaces, whose purpose of use and performance expectation is to condition beings to certain forms of subjectivity, is to create a physical distinction between 'outside' and 'inside.' An epistemological one follows the physical distinction. Through the application of performance-oriented spatiotemporal management, entities are controlled and guided. Inside, an artificial habitat, organized by architectural techniques, is constructed in which it is planned when and what to eat, what knowledge to learn and what to keep (curriculum), and which body can come side by side with other bodies.

In this conceptualization, spatial dynamics transform into a laboratory setting, thereby facilitating the production of subjectivity and objectivity. As time-space becomes a laboratory, the 'epistemological' and 'ontological' distinction between inside and outside becomes more pronounced. The prerequisite for being an urbanite is to pass through the condition-space filter. Individuals, through their developmental phases from domestic upbringing to formal education, eventually assimilate into professions where their

'performance' is critically evaluated. Therefore, the house is a laboratory for producing the family; the camp is a laboratory for producing the refugee; the factory is a laboratory for producing the worker; the shelter is a laboratory for producing the domestic animals; the farm is a laboratory for producing the racehorse; and the greenhouse is a laboratory for producing crops. Eventually, all conditions and spaces, such as Robert Boyle's air pump or the box containing OncoMouseTM, will be "modest witnesses" of what happens "inside." Thus, as time-space becomes a laboratory, beings are domesticated, organized, cultivated, and reproduced. This paper illustrates a complex interplay between space and biopower and offers insights into how scientific practices are embedded within and influenced by their socio-political contexts for future research.

Endnotes

1. The framework drawn for the concept of performance in this study is close to the concept of performativity that Lyotard discussed in The Postmodern Condition. Lyotard refers to performativity, which he thinks means "the effectiveness of the system," as a strategy to achieve the "best input-output ratio" in the control and production processes (Lyotard, 1984).

2. The Panopticon, conceived by the English philosopher and social theorist Jeremy Bentham in 1785, represents a paradigmatic model of prison architecture. Design is predicated on the principle of omnipresent surveillance, enabling a single watchman to observe all inmates without themselves being seen. Bentham's conceptualization of the Panopticon not only sought to revolutionize the penal system through architectural innovation but also aimed to instill a sense of constant surveillance within the psyche of the prisoners, thereby fostering a self-regulating behavior (Bentham &Bowring, 1843).

3. The Royal Society is an ensemble that has been conducting scientific activities in England since the second half of the 17th century (Shapin, Schaffer, 1985).

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On the spatial experience of animal in architecture: A speculative transdisciplinary inquiry

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Abstract
This article explores the architectural spatial experience of animals by employing the speculative inquiry as methodology with transdisciplinary research and Socratic questioning. It begins by addressing the gap in architectural theory regarding the animal's role as an active spatial experiencer, often overshadowed by anthropocentric perspectives. Drawing on key concepts such as "Umwelt," "affect," and the newly proposed "trans-umwelt," the study establishes a speculative framework to examine how animals interact with architectural spaces. The article investigates how "affective embodiment"— the process through which animals are considered to engage with space—, affective possessions of the animal and the spatial experience can inform our understanding of their interactions. The article then speculates on the architectural spatial experience of animals through two primary stages: perceptual engagement and affective response, followed by behavior, learning, and place-making. Using the narrative of a cat entering an in-between space surrounded by walls, the study demonstrates how animals might perceive, emotionally respond to, and interact with architectural environments, ultimately transforming them into meaningful places with post-experiential situations like site selecting and place-making. The study concludes that architectural spaces, conceived as trans-umwelts, have the potential to actively shape an animal's existential experience, offering a new dimension to architectural theory.

Keywords
Affective embodiment, Animal, Architectural spatial experience, Umwelt, Speculative inquiry.

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1. Introduction: On motivation and methodology

The animal's encounter with the built environment may form a fundamental relationship that allows it to be included in the architectural theory through the spatial experience. It can be argued that, however; the state of architecture with an anthropocentric structure reveals the existence of a distorted animal-architecture relationship, which places the animal in a passive position detached from the spatial experience. Thus, it can not find a reflection in architectural theory as a spatial experiencer, which presents a gap in that awaits discussion. Construction of a discussion structure trying to form knowledge of the animal's spatial experience may be a critical attempt to reveal a possibility of a new aspect in architectural theory. Therefore, this article aims to present a set of speculations for the construction of a knowledge on the architectural spatial experience of animals.

The exploration of a knowledge focused on the spatial experience of animals inherently involves navigating significant dilemmas. These challenges stem from the human researcher's limitations which inhibits them from fully comprehending a form of existence fundamentally different from their own. As humans, researchers are constrained by their subjective experiences and the human-centric perspective, which makes it difficult to draw absolute consequences about an animal's experiential world. This dilemma is mentioned by Nagel (1974), regarding the subjective nature of experience: the idea that understanding "what it is like to be a bat" is beyond human grasp because it involves a reality fundamentally distinct from human experience. The question is not about how a bat's existence appears from a human standpoint, but rather what the experience of being a bat signifies for the bat itself.

Given that the core of this research centers on the animal's own experience, the study embraces a speculative framework. It recognizes that any attempt to understand the nature of an animal's spatial experience will necessarily involve an element of speculation. By adopting a speculative framework, the study aims to explore the possibilities and potentials within an animal's experiential world, rather than attempting to definitively describe or quantify it. In this context, speculative inquiry has the potential as a methodology to move beyond traditional empirical approaches, which often struggle to capture the richness and variability of non-human experiences. Speculation, as an experimental mode of thought, does not exist apart from experience but is an ongoing engagement with it, seeking to transform understanding through imaginative propositions (Savransky, 2021). The pragmatic aspect of speculation is reflected in the way it establishes logical connections between the situations being speculated upon. It might enable creative experimentation, allowing for the envisioning of new ways of thinking and knowing that are not confined to human-centric perspectives (Savransky et al., 2021a). It invites researchers to consider how speculative thinking might help reveal the complex relationships animals have with their worlds, challenging established notions and embracing a more open-ended exploration of possibilities (Savransky et al., 2021b; Savransky, 2021).

Within the context of the article, the production of speculative theories through the speculative inquiry methodology presents two fundamental approaches to the reader: transdisciplinary research, which provides access to knowledge about both the animal's world and the structure of architectural spatial experience, and Socratic questioning as a tool, which knots the knowledge revealed by this research, enabling the formation of speculative theories. The article is structured around the "knitting" of insights gained from these two approaches in simultaneity. The author, in accordance with this, simultaneously embodies three roles: conducting transdisciplinary research, aiming to form relationships through Socratic questioning, and constructing speculative theories by providing answers within a logical structure based on their research and the questions posed.

In order for speculative research to pave the way for the emergence of

speculative theories, there is a need for a 'knowledge repository' concerning the themes and contents of speculative discourse. In this context, it is believed that opening up the 'knowledge' about both the animal's world and the structure of architectural spatial experience through the lens of different disciplines is required, which navigate us to transdisciplinary research. Transdisciplinary research encourages researchers to be open to various viewpoints and diverse sources of knowledge. It goes beyond simply combining insights from different fields; seeking to create new frameworks and understandings by synthesizing diverse disciplines, fostering collaborative inquiry that transcends traditional boundaries. This approach enriches knowledge by allowing for the integration and co-creation of insights that might not be possible within a single discipline. Thus, the complex nature of the theme of animal's architectural spatial experience and the diverse channels through which disciplines can contribute their knowledge highlight the importance and necessity of transdisciplinary inquiry in the study.

Notions, discussions, and findings from different disciplines related to both the animal's world and architectural spatial experience are "knotted" through question-and-answer sets positioned at critical thresholds in the article. These sets are generated using the Socratic questioning approach. Socratic questioning is a methodical and structured approach to inquiry designed to explore thoughts in various directions and for multiple purposes, such as examining complex ideas, uncovering hidden assumptions, analyzing concepts, and distinguishing between what is known and what remains unknown (Paul & Elder, 2006). It systematically focuses on utilizing critical thinking as a vital tool. The goal of both critical thinking and Socratic questioning is to cultivate an inner voice of reason that examines thoughts, feelings, and actions, directing them toward more reasoned and reflective thinking (Paul & Elder, 2006).

The speculative set is composed of questions precisely because this format activates thought processes, facilitates the emergence of new ideas and scenarios, assists in envisioning different possibilities, and helps cope with uncertainty. This method of questioning not only enriches the speculative nature of the study but also allows for a critical stance. Unlike classical Socratic questions, which typically follow a linear and progressive path to unveil a single logical outcome, the primary aim of these questions being fed by Socratic questioning approach -not question format- is to encourage speculative exploration rather than to reach definitive consequences. The questions not only guide the development of a speculative theory but also encourage the reader to engage actively, thinking their own responses and criticisizing the answers speculated by the author. The author, while posing these questions, simultaneously provides responses that are informed by their encounters with the body of knowledge, contributing to a theory-building process. These responses aim to establish a logical flow that is based on both the structure of the questions and the findings derived from the research. At this point, the author simultaneously answers the questions, as if the questions were directed at them, thus shifting from the role of author to that of reader.

The questions are structured along three overlapped and intersected axes, each capturing distinct dimensions of the inquiry process (Figure 1). The Socratic Questioning Form Axis (SQ) addresses the functional structure of the questions, illustrating how they drive the study's progression. Within this axis, questions follow either a linear-kind of progression (SQ1)—a more systematic flow where each question builds upon the previous one to establish theoretical grounding—or a format of simultaneous thresholds (SQ2). This latter approach invites multidimensional thinking, where questions act as interconnected, exploratory entry points that foster speculative inquiry beyond a straightforward sequence.

Next, the Roles in Interaction Axis (RI) categorizes questions according to their intended actors and type of engagement. Here, the author's self-reflective inquiry process (RI1) is distinguished by questions that guide the

author introspectively, helping them build the theoretical framework as they formulate responses. The author and reader's critical engagement process (RI2) is designed to engage both parties actively. It encourages a shared interpretive process, including readers to question, interpret, and evaluate the propositions in parallel with the author's inquiry.

Finally, the Methodology Axis (M) organizes questions based on their thematic focus, emphasizing the specific goals within the research. The axis includes theoretical foundation (M1) questions, which provide a structured basis for the core arguments, alongside conceptual deepening and analytical examination (M2) questions that relates with central concepts to clarify and analyze key theoretical ideas. Additionally, speculative exploration, intellectual expansion, and critical engagement (M3) questions encourage speculative inquiry, prompting readers to explore and engage critically with the study's insights.

The reason for examining the questions across three axes is to support the multidimensional nature of the research, fostering a more in-depth analysis and meaning-making process by encouraging different forms of thinking and engagement. Each axis provides a framework that highlights a specific aspect and function of the research.

With transdisciplinary research and Socratic questioning, the article's structure is designed to guide the reader through these complex concepts. In the "Foundations" section of the article, key concepts such as *umwelt*, affect, and trans-umwelt are introduced, opening a discussion on the animal's world and exploring the ontological relationship between architectural space and its world. After establishing this ontological relationship, the "Toward the Architectural Spatial Experience of the Animal" section focuses on the concept of affectiveness, examining both the affective possessions of spatial experience and of the animal's cognitive world. This section aims to uncover the knowledge and framework for speculating on the architectural spatial experience of the animal. The concept of affective embodiment is introduced as the focal point of the experiential relationship between the animal and architectural space. In the section titled "Affective Embodiment of the Animal in Architectural Space", the affective possessions of the animal's world are used as layers in the speculative theory-making, working through two stages: "perceptual engaging and affective response" and «behavior, learning, selecting, place-making." The speculative theory set is supported simultaneously with the narrative of a cat entering an in-between space surrounded by walls. According to this theory, the cat may perceive the wall, interpret it pragmatically within an affective framework, produce emotion (seeking), which leads to behavior (scratching), and learn from the space. The learning process may lead the cat to return to the space as it selects it and even transform it into a place.

2. Foundations

2.1. Umwelt

The concept of "Umwelt," central to Uexküll's studies, is derived from the German word for environment. Umwelt serves as the key to understanding an animal's world and its relationships with the elements it interacts with (Uexküll, 1982). Each animal's Umwelt forms a closed unit, with its own unique significance for the subject (Uexküll, 1982). Tailored precisely to meet specific needs, the Umwelt of each animal, as described by Uexküll (1957), avoids any deficiencies or excesses. To illustrate Umwelt's role, Uexküll employs the metaphor of a "soap bubble" (Uexküll, 1926). This metaphor vividly portrays Umwelt as both defining the boundaries of the organism's world and acting as a protective shield, concealing infinite possibilities beyond its limits.

Uexküll's concept of Umwelt illustrates how animals perceive and interpret elements in their surroundings. He identifies two core worlds in relation with the animal's Umwelt: the "perceptual world," [Merkwelt] shaped by sensory input and processed by the nervous system and the "action world," [Wirkwelt] associated with the animal's interaction with the world by their actions (Uexküll, 1913).

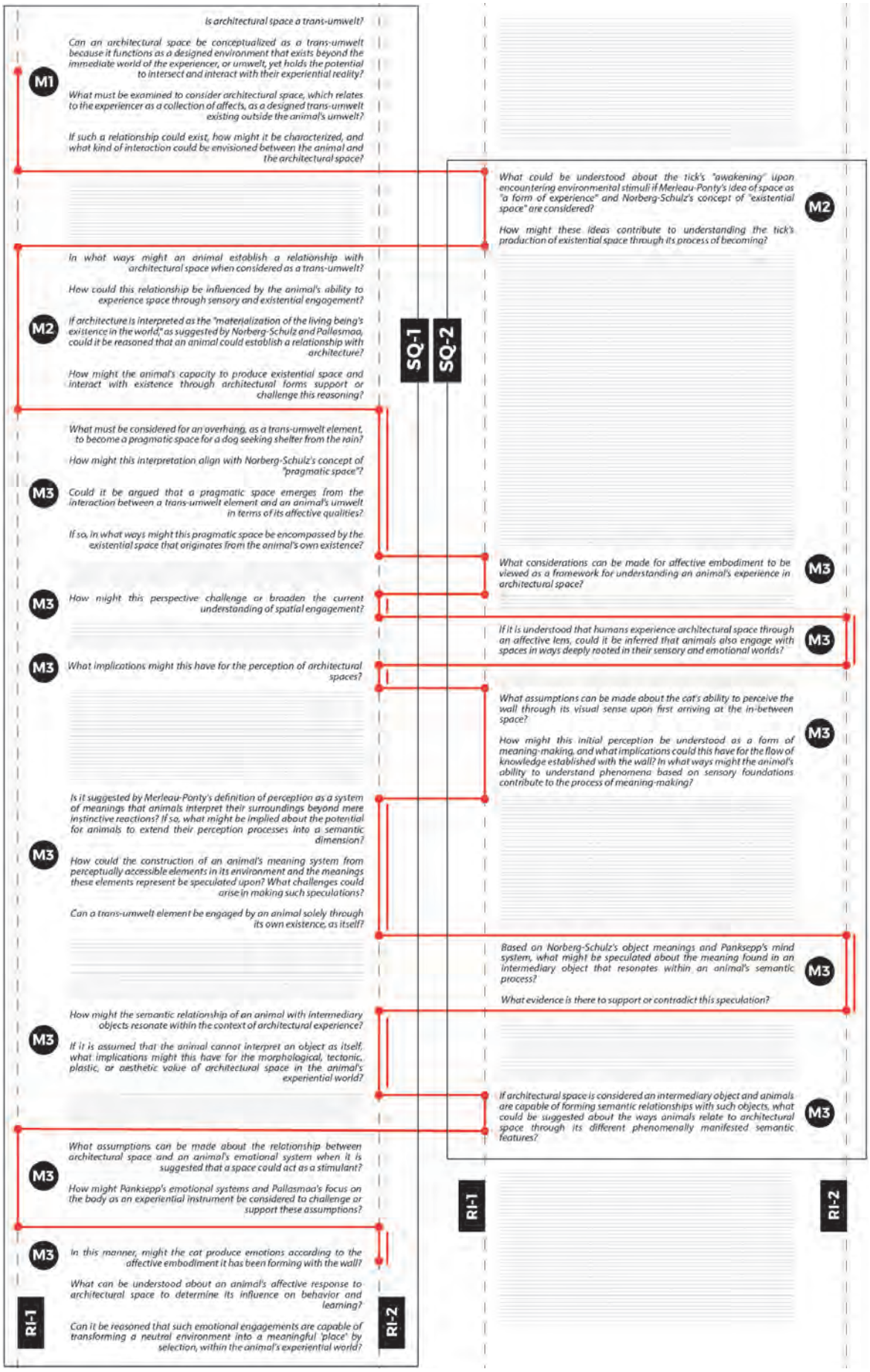

Figure 1. *Map of axes of questions during questioning process in article.*

In his studies on ticks, Uexküll showcases how animals create their experiences based on their interactions with the elements forming these two worlds in their Umwelt. Ticks, driven by hunger, operate within a system comprising specific stimuli from the mammal they feed on. Uexküll describes the tick's life experience as it interacts with the mammal's stimuli (Uexküll, 1957). The tick's existential position in an environment is investigated by biologists at the Zoology Institute in Rostock, Germany. To understand the tick's lack of stimuli, they kept it in a state of hunger or "close to sleep" without a mammal interaction for eighteen years (Uexküll, 2010). Uexküll suggests that time provides consistent objectivity, but the tick's relationship with time demonstrates that the subject controls time depending on its environment (Uexküll, 2010). Thus, he concludes that time and space may not exist without a living subject (Uexküll, 2010).

On their fundamental relationship, Uexküll states that the tick does not perceive the mammal as a whole entity, but as a source of butyric acid (Uexküll, 1957). From the perspective of stimulus and stimulator, the tick and mammal interact as a smelling organ and a source of odor. Subsequently, the relationship progresses through touch and feeding organs, detached from individuality and bodies (Figure 2). By reinterpreting Uexküll's work on the tick, Deleuze suggests that the stimuli it encounters should be understood as affects rather than strictly defining the interacting entities [the mammal] as organisms (1988). Deleuze's framing of this situation in terms of affects seems crucial for understanding Uexküll's conception of the tick-mammal relationship, or umwelt-organism interaction in general. In this sense, examining the interactions that occur within an organism's umwelt through the notion of *affect* can offer potential insights for the study as well.

2.2. Affect and umwelt

Starting with the definition, affect refers to the forces that operate alongside conscious awareness—visceral and vital energies that propel a living-being toward action, thought, and expansion. It embodies a body's ability to influence and be influenced, shaping its ongoing interaction with the world and the particularity of its existence. Affect arises from complex, intertwined relationships, dissolving boundaries into thresholds and tensions, blends and blurs. It inherently belongs to the interconnectedness of worlds, bodies, and the spaces between them (Seigworth & Gregg, 2010).

In Uexküll's definition of umwelt, there can be seen points that both align with and diverge from the perspectives touched upon by the notion of affect. Firstly, Uexküll introduces the concepts of perception image and affect image to interpret that the relationships with other umwelts may vary and different organisms' umwelts may overlap by holding different meanings for each other. The perception image results from the general existence of an element in the organism's umwelt, while the affect image arises from the interaction. Uexküll exemplifies this through the dragonfly's relationship with a branch. The branch, among those forming the perception image, becomes an affect image for the dragonfly when it flies around and lands on it, as it serves as a landing spot (Uexküll, 2010).

Overlapping umwelts may lead to diverse situations in perception and affect image production. Organisms, initially unaware of each other's existence, gain meaning through "being-like-the-other," where absolute harmony with the other's existential features is achieved, going beyond mere resemblance. Uexküll illustrates this with the relationship between spiders and flies. The spider adopts fly-like qualities in weaving its web, entirely shaped by the fly's existential features (Uexküll, 1982).

An inanimate element like a spider web as an affective entity demonstrates that Umwelt's structure may consist of non-living elements. Moreover, these elements may extend beyond the physical, encompassing affects such as shadow, light, and temperature. For instance, the crab's perception image is quite simple, being any object with a cylindrical or conical shell in a specific arrangement (Uexküll, 2010).

Uexküll's perspective on perception and affect images, being-like-the-other, and inanimate-physical/non-physical elements in umwelt aligns with the concept of affect, which emphasizes the interrelation of different worlds, bodies, and the spaces that connect them, as well as the capacity of a body to influence and be influenced, continuously shaping its relationship with the environment and the uniqueness of its existence. On the other hand, it seems like he does not correspond to the idea within the notion of affect that focuses on dissolving boundaries into thresholds and tensions, blends and blurs; because of the previously mentioned soap bubble metaphor, which defines the boundaries of the organism's world while acting as a protective barrier that hides endless possibilities beyond its confines, and the discussion of inter-umwelt relations in terms of overlapping rather than intersecting.

In accordance with this, the divergence in Uexküll's concept of *overlapping* as a *relationship form between umwelts* can be said to have been criticized and developed in the context of affect by Deleuze and Guattari (1987, 1992), while Merleau-Ponty's thoughts can be interpreted in relation to this concept (1983, 2003).

Deleuze and Guattari contrast Uexküll's concept of the "umwelt" as a soap bubble and overlapping instead of intersecting, with their fragmented umwelt approach based on intersections, allowing for the co-existence of shared parts, agents, and stimuli, [thus affects], rather than exclusive environments unique to living beings (1987). According to Seigworth & Gregg (2010), Deleuze positions affect at the core of things and relationships, embedded in immanence, and within the complex assemblages that simultaneously shape bodies and worlds. This perspective suggests that affect acts as the primary force driving bodily impulses, and as a vital field of transformations that traverse both human and nonhuman becomings. Focusing on the animal, additionally, Deleuze's philosophical perspective questions the existence of animals in a framework with the notion of the "mechanism of affects," emphasizing the capacity of the affected organism to respond differently to the same stimuli (1992).

In Merleau-Ponty's philosophy, on the other hand, behavior [as an action of the affected] is a dynamic form that continuously reveals new relations between the individual and the environment (1983) and the place of the animal is understood through the "phenomenon of behavior," which he conceptualizes as the body of existence (2003). According to Merleau-Ponty (2003), the umwelt is a world that enables the animal to establish a relationship with its behavior, conforming to its limits and regulating its actions. Moreover, Merleau-Ponty enhances Uexküll's umwelt concept with a new layer: the intersections of umwelts. He states that existence is created through these intersections (1983). Drawing from Uexküll's biology and the concept of umwelt, Merleau-Ponty establishes an insight where existence emerges from the interactions between bodies and environments (Buchanan, 2008). In this perspective, neither the animal nor the umwelt becomes the central focus; instead, the focus lies on the behavior that reveals the animal's existence.

While Uexküll discusses perception and affect images in terms of what might be understood as overlapping structures, he is ultimately referring to the affective transformation of an entity when it encounters an animal. In contrast, Deleuze and Merleau-Ponty interpret this transformation through the concept of intersection, where the entity becomes relational through affective engagement. Although they use different terminologies, one might speculate that all three theorists are addressing a process of transformation that could imply a dynamic shift from overlap to intersection (Figure 3). This raises the question of whether what initially appears as overlapping could later be interpreted as intersecting as it undergoes transformation through affect. To further investigate this, I propose the concept of the *trans-umwelt*, which captures this dual nature—an umwelt with elements that initially coexist within an overlapping framework but can become engaged and be relational through intersections driven by

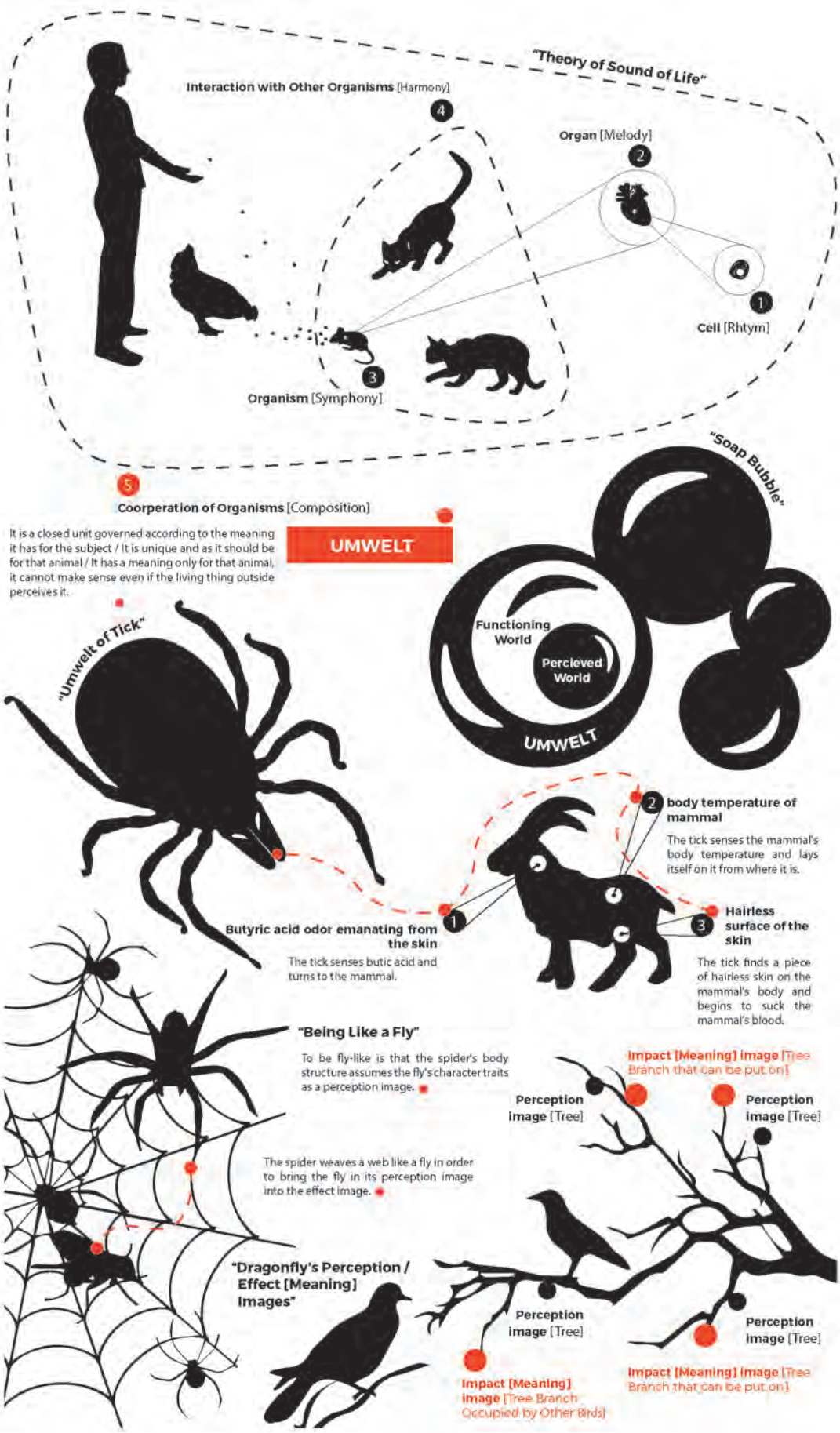

Figure 2. *Uexküll's Umwelt.*

affects. By introducing the notion of the *trans-umwelt*, it can be better understood how these entities and processes evolve, moving from mere coexistence to active relationality within the animal's experiential world.

2.3. Trans-umwelt

The concept of *trans-umwelt* can be constructed to describe other umwelts that exist both within and outside an animal›s umwelt, containing elements that have the potential to

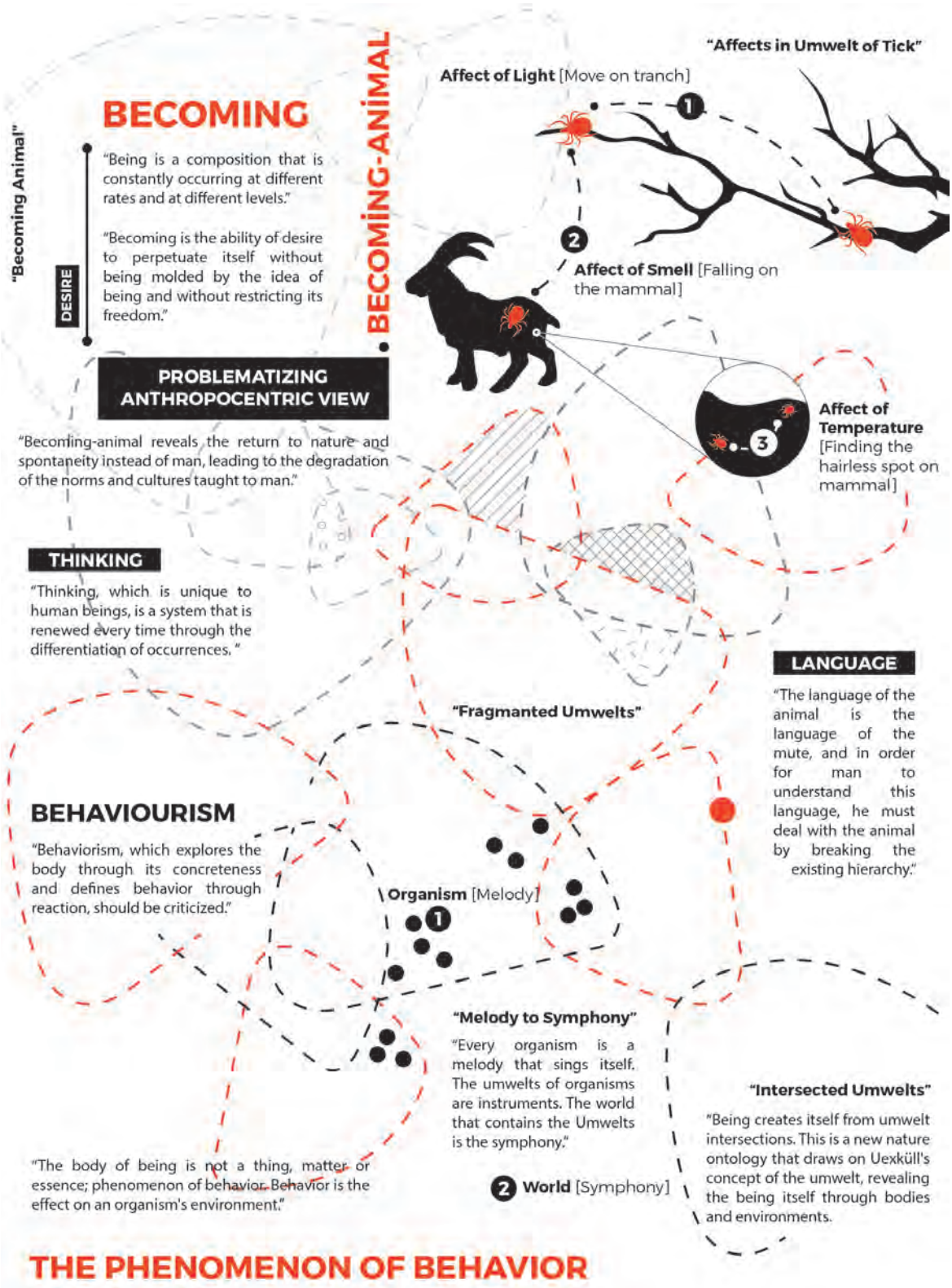

Figure 3. *Thoughts of Deleuze, Guattari and Merleau-Ponty on Umwelt.*

become accessible to the animal depending on its affective capabilities. Designed or not-designed, a *trans-umwelt* represents a set of phenomena that can partially reveal themselves to the animal based on the extent to which these entities intersect with the animal's own *umwelt*. For instance, Heidegger's example of a lizard lying on a rock illustrates how the rock serves as a *trans-umwelt* element; the lizard does perceive the rock as a surface on which it can lie (1995). Similarly, Uexküll›s study of the dog-chair relationship shows how a chair transforms to a *trans-umwelt* element for a dog; when commanded «Chair!», a trained dog will jump onto any surface it can sit on, perceiving it as a place to sit (Uexküll, 2010). These examples demonstrate how certain entities can occur within an animal›s *umwelt* while also belonging to a *trans-umwelt*; they bridge the gap between the animal's world and other potential worlds by becoming openable.

When elements from outside an animal's umwelt become relevant, they do so not just through their presence but through their potential to be integrated into the animal's world. For a trans-umwelt element to become an affect, the animal's umwelt must be opening to it. This openness is made possible through an experience that is connected to the animal's ontological and cognitive possessions. As the animal interacts with these elements, they can transform into intersected entities, where the interaction is driven by affect and becomes integral to the animal's experiential world. This example of a blind person and their guide dog can be an expansive example to elaborate on this process of interaction of trans-umwelt with animal's umwelt:

> "A blind person's *umwelt* is quite limited; the road is familiar only to the extent that they can feel it with their feet and cane. The street they pass through is shrouded in darkness for them. Their guide dog must lead them home along a specific path. The difficulty in training the dog lies in incorporating certain perceptual cues into the dog's environment, cues that are not of concern to the dog but are crucial for the blind person. Therefore, the path the dog takes should pass over obstacles that the person can feel with their cane. It is particularly challenging to teach the dog perceptual cues for things like a mailbox or an open window, which the dog would normally pass under without noticing. Moreover, it is difficult to include in the dog's *umwelt* a cobblestone on the street that could trip the blind person, since such an object is almost unnoticed by a freely running dog." (Uexküll, 1934)

It is important here to emphasize that objects like the mailbox or open window, which the dog would typically pass by without noticing, represent *overlapped* elements [perception image] of a trans-umwelt. However, to guide a blind person, the dog must be introduced to these elements, transforming them into *intersected* components [affect image] within the dog's own *umwelt*. From this perspective, the relationship between the dog's *umwelt* and the designed trans-umwelt is both overlapped and intersected throughout the process. What transforms this relationship is the trans-umwelt elements becoming affects, thereby evolving the way they interact with the animal.

2.4. Architectural space as trans-umwelt

Is architectural space a trans-umwelt? Can an architectural space be conceptualized as a trans-umwelt because it functions as a designed environment that exists beyond the immediate world of the experiencer, or umwelt, yet holds the potential to intersect and interact with their experiential reality? Unlike a static environment, architectural space is crafted to evoke specific affects—emotional responses, sensory stimuli, and behavioral reactions—that can transcend the boundaries of an individual's world. Through its materiality, spatial configurations, lighting, textures, and acoustics, architectural space creates a dynamic field where elements can either remain latent or become activated based on how they are experienced. Thus, this capacity for being both part of and separate from an individual's world [overlapped and intersected],

can align architectural space with the concept of a trans-umwelt—an environment that is not fully contained through immediate experience but offers possibilities for connection, engagement, and transformation through its designed elements and affective potentials.

What must be examined to consider architectural space, which relates to the experiencer as a collection of affects, as a designed trans-umwelt existing outside the animal's umwelt? Such a question first directs us to examine the ontological relationship that an animal establishes with architectural space. *If such a relationship could exist, how might it be characterized, and what kind of interaction could be envisioned between the animal and the architectural space?*

2.5. An ontological relationship between the animal and architectural space as trans-umwelt

Merleau-Ponty (1945) posits that existence emerges intrinsically, without any pre-existing conditions, revealing the inseparable bond between being and the spaces we locate ourselves. Within these spaces, a significant dimension unfolds as a form of experience, offering a canvas for individual existence and self-discovery. Norberg-Schulz (1971) embarks on a defining exploration, characterizing existential space as the convergence of existence with the world, leading to a profound integration with the surroundings. Architecture plays a pivotal role in amplifying this connection, embodying existentiality within its structures, and solidifying the intangible facets of being into tangible forms [through affects], surpassing mere utilitarianism. Furthermore, Pallasmaa (1994) reminds us of architecture's enduring task—to concretize and structure the existential metaphors defining human existence.

Here, let's remember the tick. *What could be understood about the tick's "awakening" upon encountering environmental stimuli if Merleau-Ponty's idea of space as "a form of experience" and Norberg-Schulz's concept of "existential space" are considered? How might these ideas contribute to understanding the tick's production of existential space through its process of becoming? In what ways might an animal establish a relationship with architectural space when considered as a trans-umwelt? How could this relationship be influenced by the animal's ability to experience space through sensory and existential engagement? If architecture is interpreted as the "materialization of the living being's existence in the world," as suggested by Norberg-Schulz and Pallasmaa, could it be reasoned that an animal could establish a relationship with architecture? How might the animal's capacity to produce existential space and interact with existence through architectural forms support or challenge this reasoning?*

In response to these questions, Merleau-Ponty's concept of space as "a form of experience" and Norberg-Schulz's notion of "existential space" provide a framework to suggest that animals may be seen as creating their own existential spaces within their umwelts. These concepts allow us to speculate that animals, much like humans, have the potential to establish relationships with architectural spaces. When animals encounter architectural space, this space can become integrated into their lived experience—a place where their existence is actively expressed and shaped. If architectural space is understood as a trans-umwelt with affective qualities, the relationship between architectural space and the animal can be seen as a dynamic process of interaction and transformation, influenced by the animal's sensory and emotional responses. This perspective suggests that architecture is not a static but rather an "affective space" that plays an active role in creating existential experiences for animals. By considering architecture in this way, it becomes possible to view architectural space as an environment that participates in the animal's process of becoming.

This speculation can be expanded by considering Norberg-Schulz's (1980) discussion of three additional types of spatial production beyond existential space: pragmatic space, shaped by the unique needs and characteristics of the experiencer's existence [their umwelt]; perceptual space and cognitive space,

which run parallel to the experiential process that allows the definition of pragmatic space. According to Norberg-Schulz (1980), for an animal, pragmatic space is shaped by instincts arising from its existence. The concept defined by Norberg-Schulz as instinct is related to the umwelt, as the characteristics and necessities determined by an animal's umwelt guide its instincts.

What must be considered for an overhang, as a trans-umwelt element, to become a pragmatic space for a dog seeking shelter from the rain? How might this interpretation align with Norberg-Schulz's concept of "pragmatic space"? Could it be argued that a pragmatic space emerges from the interaction between a trans-umwelt element and an animal's umwelt in terms of its affective qualities? If so, in what ways might this pragmatic space be encompassed by the existential space that originates from the animal's own existence?

If these questions are answered affirmatively, it might be argued that an animal experiences space as a pragmatic space, guided by its pragmatic instincts. This suggests that an architectural space, when considered as a trans-umwelt element, exists in the animal's world only to the extent that it holds the potential to become pragmatically affective. The space's relevance and meaning are thus defined by its ability to engage with the animal's instincts and affective responses, creating a practical and meaningful environment for the animal based on its immediate needs and sensory experiences (Figure 4).

This speculative flow suggests that an animal can establish an ontological relationship with architectural space in the manner discussed. It also indicates that it is possible to conceptualize the foundation for the idea of discussing the animal's experience of architectural space in this way. In this context, to establish a speculative framework for the animal's experience of architectural space, it is necessary to unpack the affective layers of spatial experience and explore their relationship with the animal's existence.

3. Toward the architectural spatial experience of the animal

3.1. Affective possessions of spatial experience: Affective embodiment in architectural space

Spatial experience in architectural theory can be understood through the lens of affect, where the unity of mind and body is expressed through the dynamic interplay of sensory and emotional responses. Pallasmaa (2002) introduces the concept of embodied knowledge, suggesting that our understanding of architecture is generated through affective engagement, as our bodily presence interacts with the built environment. Merleau-Ponty (1945) supports this view, highlighting that bodily experience conveys not only an objective spatiality but also a lived, affective spatiality, where our being-in-the-world merges with the surrounding environment. Within this affective framework, Perez-Gomez (1994) and Pallasmaa (2005) consider architecture as an embodiment of consciousness, experienced through a combination of material presence and immaterial affects. This multidimensional perspective on the body encompasses affective responses, such as emotions, bodily sensations, sensorimotor capacities, and cultural influences, thereby enriching the depth of architectural experience (Bower & Gallagher, 2013; Varela et al., 1991).

By integrating affect into spatial embodiment, architecture becomes a medium that not only reflects but also actively shapes our sensory and emotional experiences. This notion goes beyond the physical structure of architecture, suggesting that spaces are deeply intertwined with the affective dimensions of human existence. Pallasmaa (2015) reflects on the echoes of architectural experience, going beyond mere facts to give meaning through concrete reflections, connections, and empathy. The built environment strongly highlights our sense of being. In this exploration of human existence, architectural experience becomes an intensified form of being (Pallasmaa, 2002). As we engage with the spaces

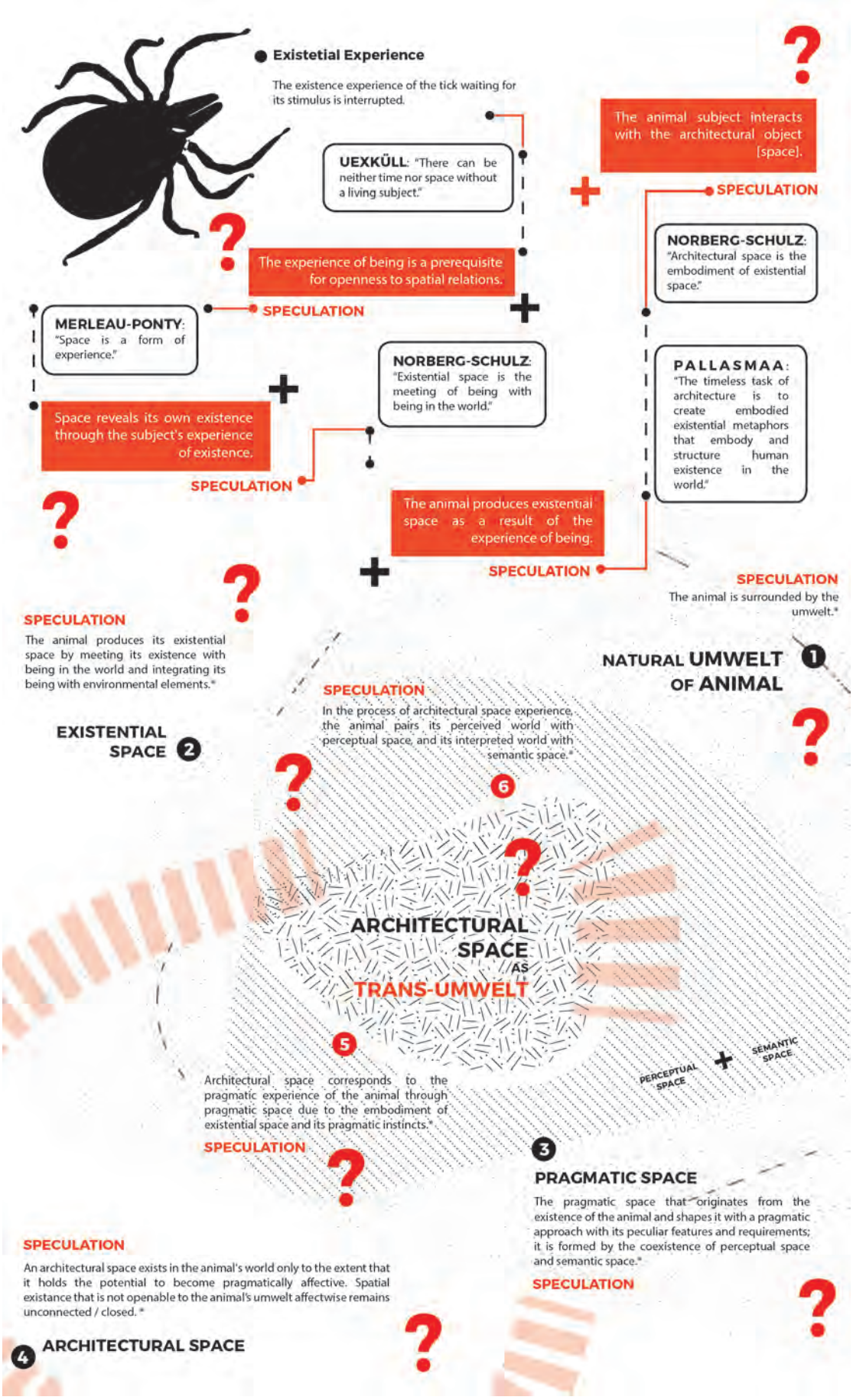

Figure 4. *The Ontological Relationship between the Animal and Architectural Space.*

we inhabit, a greater understanding of existence emerges, linking the physical world with the intangible realm of existential experience. Building on this idea, architecture further enhances our sense of existence (Pallasmaa, 2005). Pallasmaa (2013) interprets architecture as a physical expression of mental space. Our world finds a tangible form in the structures around us, bringing together the areas of cognition and the physical body. In this exploration of existence and architectural space, Pallasmaa's insights (2005) highlight the importance of lived experience. Architecture embraces tactility, shaping our perceptions and encouraging an intimate connection with the world around us.

This brings us to the concept of *affective embodiment*—the idea that our experience of space is fundamentally shaped by the interplay of affective and sensory engagement. Affective embodiment in architecture considers how spaces are not merely physical entities but are charged with the potential to evoke emotional and sensory responses, thereby becoming an integral part of our lived experience.

What considerations can be made for affective embodiment to be viewed as a framework for understanding an animal's experience in architectural space? How might this perspective challenge or broaden the current understanding of spatial engagement? If it is understood that humans experience architectural space through an affective lens, could it be inferred that animals also engage with spaces in ways deeply rooted in their sensory and emotional worlds? What implications might this have for the perception of architectural spaces?

To consider affective embodiment as a framework for understanding an animal's experience in architectural space, it can be argued that attention must be given to how animals perceive and engage with their environments through sensory and emotional responses. This perspective may suggest that architectural space serve as a trans-umwelt, a pragmatically affective environment that extends beyond immediate sensory input to encourage deeper, more nuanced interactions for animals. By examining space through the lens of affective embodiment, one might explore how animals experience architectural space with an embodied and affective process. To construct the discussion, let's start with examining the cognitive and affective possessions of the animal.

3.2. Affective possessions of the animal's cognitive world

In *Matter and Memory*, Henri Bergson links affect to cognition, by defining it as part of organism's internal bodily experience that merges with the image of external objects. Bergson argues that this aspect naturally results from any act of perception, which leads him to claim that "perception can not occur without affection" (Bergson, 1991). Additionally, ethology, the study of animal behavior, is regarded by Deleuze as a "study of affects," defining living beings based on the affects they are open to (1988). Bergson emphasizes that affect is a crucial component of how organisms perceive their environments, suggesting that perception is always intertwined with an emotional or sensory response. Deleuze expands on this by arguing that animals can be understood based on the range of affects they are open to, thus positioning affect as central to animal behavior and experience. This alignment between Bergson and Deleuze leads us to cognitive ethology, which seeks to understand the mental processes underlying animal behavior.

This framework naturally leads to cognitive ethology, which explores the mental processes underlying behavior, often inferred from observed actions since these processes are not directly observable. Griffin's work supports the idea of animal consciousness, proposing that if neurons, synapses, and neuroendocrine mechanisms share fundamental properties across species, then similar mental experiences should also exist to some extent (1976). This approach connects the study of affect with the investigation of mental states, suggesting that understanding animal behavior requires considering both the affective and cognitive dimensions.

Building on this foundation, cognitive neuroscience provides further insight into animal consciousness by investigating the neural structures associated with conscious experiences.

Grasso (2014) discusses how similar neural structures in humans and animals might lead to comparable conscious experiences, focusing on the "phenomenal aspect" of consciousness—the experience of being an animal. Philosopher Ned Block describes this as "phenomenal consciousness," which includes sensations, feelings, perceptions, thoughts, desires, and emotions (1995).

This exploration paves the way for affective neuroscience, as examined by Panksepp (2004), which seeks to understand the emotional operating systems of the mammalian brain and the various conscious and unconscious internal states they generate. Affective neuroscience emphasizes the emotional origins of behavior and the shared nature of these origins among living beings. Panksepp suggests that both animals and humans possess similar affective emotions, which shape emotional behavior through brain programs (2004). This perspective provides a neurophysiological basis for understanding behavior, linking affective states with both conscious and unconscious processes, and offering an objective framework for interpreting the subjective experiences of animals.

Panksepp's investigation into the neural basis of subjective experience categorizes it into three main affective processes: Primary Process - Sensation & Emotions, Secondary Process - Behavior/Learning, and Tertiary Affects - Consciousness. The primary process involves a "primitive sense of experiencing oneself as an active agent in perceived events in the world," which is likely rooted in low-level brain circuits that create a coherent internal representation of the body (2004). This foundational affective layer is where primary emotions and sensations are generated, establishing a basic affective engagement with the environment. The secondary process builds upon this by incorporating emotional systems and learned behaviors. Brain functions such as habituation, sensitization, and conditioning operate nonconsciously, reflexively, and mechanistically, further shaping affective responses and contributing to instinctual emotional behaviors.

Panksepp's framework aims to objectify subjectivity by providing a structure for investigating affective states such as consciousness and awareness at the tertiary process level. He emphasizes the importance of understanding the affective tools for life and learning at the Primary Process level to comprehend how higher mental processes operate (2004). This approach underscores the significance of affect in shaping both basic and advanced levels of consciousness and behavior, offering insights into the cognitive and emotional lives of animals.

Emotion, in Panksepp's model, arises from the neural basis of sensation when endogenous sensory and emotional systems in the brain interact through changing neural rhythms. He suggests that while mammals experience emotions, they may do so similar to newborn infants, indicating they might not have cognitive awareness of their emotions (2004). This notion of affective states being experienced without higher cognitive reflection aligns with the idea that affect operates on a fundamental level across different species. Panksepp identifies eight primary affective systems that impact the primary process: the "seeking" system that drives exploration, the "rage" system for defense, the "fear" system to avoid pain, the "panic" system to initiate fear responses, and the lust, care, play, and pain systems, all of which contribute to affective behaviors (Panksepp, 2006).

The content of animal consciousness, according to Panksepp, is created through various sensory-perceptual processes such as visual, auditory, somatosensory, olfactory, vestibular, and kinesthetic inputs, which are closely linked to cognitive operations (2004). By emphasizing sensory mechanisms and learning capabilities, Panksepp's affective framework provides an understanding of animal consciousness rooted in affective embodiment. For instance, a rabbit fleeing from a mountain lion not only experiences a basic affective response of fear but also engages in a sensory and automated awareness of its behavioral options (2004). This model illustrates how affect is central to animal consciousness and cognition, shaping their emotional

Figure 5. *Affective Possessions of Animal's Cognitive World.*

experiences and guiding their embodied interactions with the environment (Figure 5).

4. Affective embodiment of animal in architectural space

According to the background mentioned, to explore an animal's spatial experience in the context of affective embodiment, two cognitive and affective dimensions seem to occur: First, perceptual processes, as highlighted through discussions of visual, auditory, somatosensory, olfactory, vestibular, and kinesthetic inputs, which are tied to cognitive functions. These processes seem fundamental to how an animal perceives and navigates its environment, forming cognitive maps and interpreting spatial cues. Additionally, affective states, which are emphasized in Panksepp's discussion of primary emotional systems [such as "seeking," "fear," "rage," and "panic"] that shape behavior and interactions with the environment. Understanding these affective responses is crucial for comprehending how animals emotionally engage with architectural spaces and respond to different spatial contexts. Second, learning processes and behaviors, as described in Panksepp's secondary process - behavior/learning, which involves learned behaviors that operate reflexively. By integrating these sensory-perceptual processes, affective states, and learning mechanisms, we can speculate how animals experience and interact with an architectural spatial environment as a trans-umwelt. Therefore, to speculate an animal's spatial experience, it is essential to try to consider the existance of architectural spatial experience as speculative layers in parallel with the previously specified affective framework of the animal, and examine them with the contribution of architectural theory, especially in the beginning. This examination pairs with an example, where a cat arrives at a space surrounded with walls, and encounters with a wall. Each discussion on a layer of architectural spatial experience that allow for affective embodiment is expected to let us form the speculation on the cat's affective embodiment.

4.1. Speculative layer I: Perceptual engaging and affective response

The fusion of existentiality and architectural space intertwines with the conscious act of perception, shaping the background of experiential direction (Merleau-Ponty, 1945). Norberg-Schulz (1966) defines perception as the first step in forming the awareness of the phenomenal world. Even the simplest perceptual schema, as noted by Norberg-Schulz, emerges as a consequence of sensory-motor activity, while higher perceptual schemas are rooted in the interplay of experiences and cultural traditions (1966). According to Pallasmaa, every experience associated with architecture is highly sensory in nature, measured equally by attributes of matter, space, and scale, encompassing sight, hearing, smell, touch, taste, as well as the skeletal and muscular systems (1994). Architecture enables the living being to weave together sensory elements that interact and nourish one another, elevating the architectural experience to a multi-sensory realm. Norberg-Schulz (1966) further contends that a complex architectural organism can only be experienced when perceptions are mentally synthesized into a cohesive experience. The interplay of perception and architectural experience illuminates the intricate relationship between the human sensorium and the spaces we inhabit. As we immerse ourselves in the architectural realm, the sensory engagement encourages a profound understanding of existence, wherein perception transcends mere observation and becomes an essential medium for experiencing the fabric of architectural reality. While some studies, such as those by Eberhard (2008), explore the neuroscientific aspects of perception and how it relates to the brain's neural processes, their findings further enrich our understanding of the multi-sensory nature of architectural experience:

> Perceived conditions in space transform into images sent to the visual cortex, connecting memory systems in the brain. Neuronal groups activated by pre-perceptual experiences thus form moments of differently perceived objects, disseminated through networks linking the thalamus and the

cortex—the thalamo-cortical system (Eberhard, 2008).

In the exploration of existentiality and architectural space, the significance of perception in shaping our encounter with the built environment emerges. Merleau-Ponty (1945) contends that perception forms the backdrop of conscious action, allowing us to be aware of specific forms or situations, while architectural spaces become canvases for self-discovery, unveiling the essence of being through the subject's experience. Norberg-Schulz (1966) supplements this perspective by defining perception as the initial stage of creating awareness of the phenomenal world. He categorizes architectural objects into three fundamental types based on their meanings: pure objects, intermediary objects, and cultural objects. Through phenomena and their inherent properties, architectural elements are represented and perceived, encompassing both known and unknown characteristics of the objects (Figure 6).

The interplay between perception and semantics finds its expression in the architectural realm. Norberg-Schulz (1966) characterizes architectural spaces as intermediary, uniting diverse semantic poles and concretizing meanings, transforming the architectural experience into a profound encounter with the built environment. Norberg-Schulz (1980) encapsulates the existential purpose of architecture, manifesting spaces that reveal the inherent potential meanings within a given environment. As inhabitants engage with the architectural space, they co-create meaning through affective embodiment.

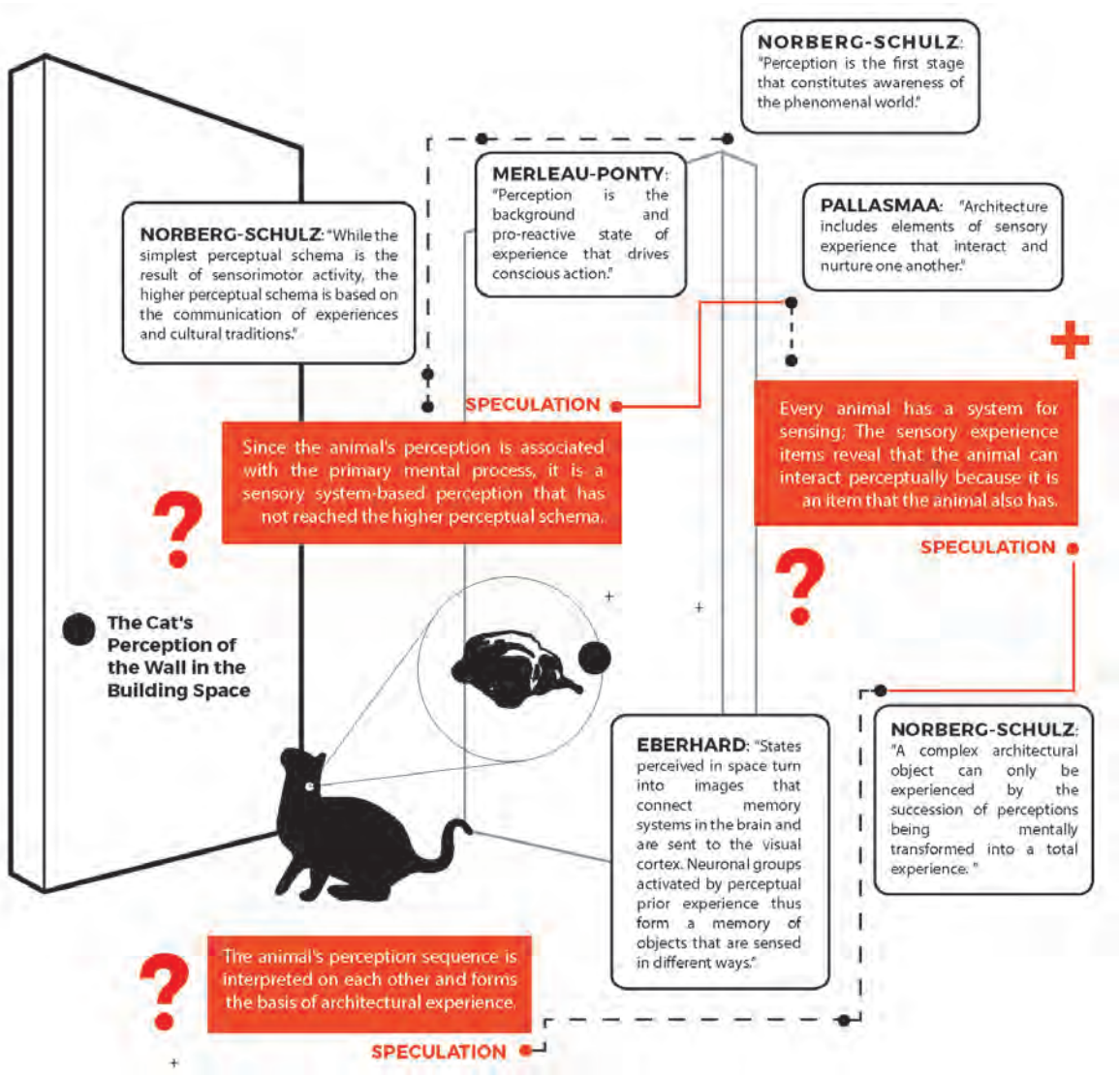

Figure 6. *Perceptual Engaging in Affective Embodiment of the Cat.*

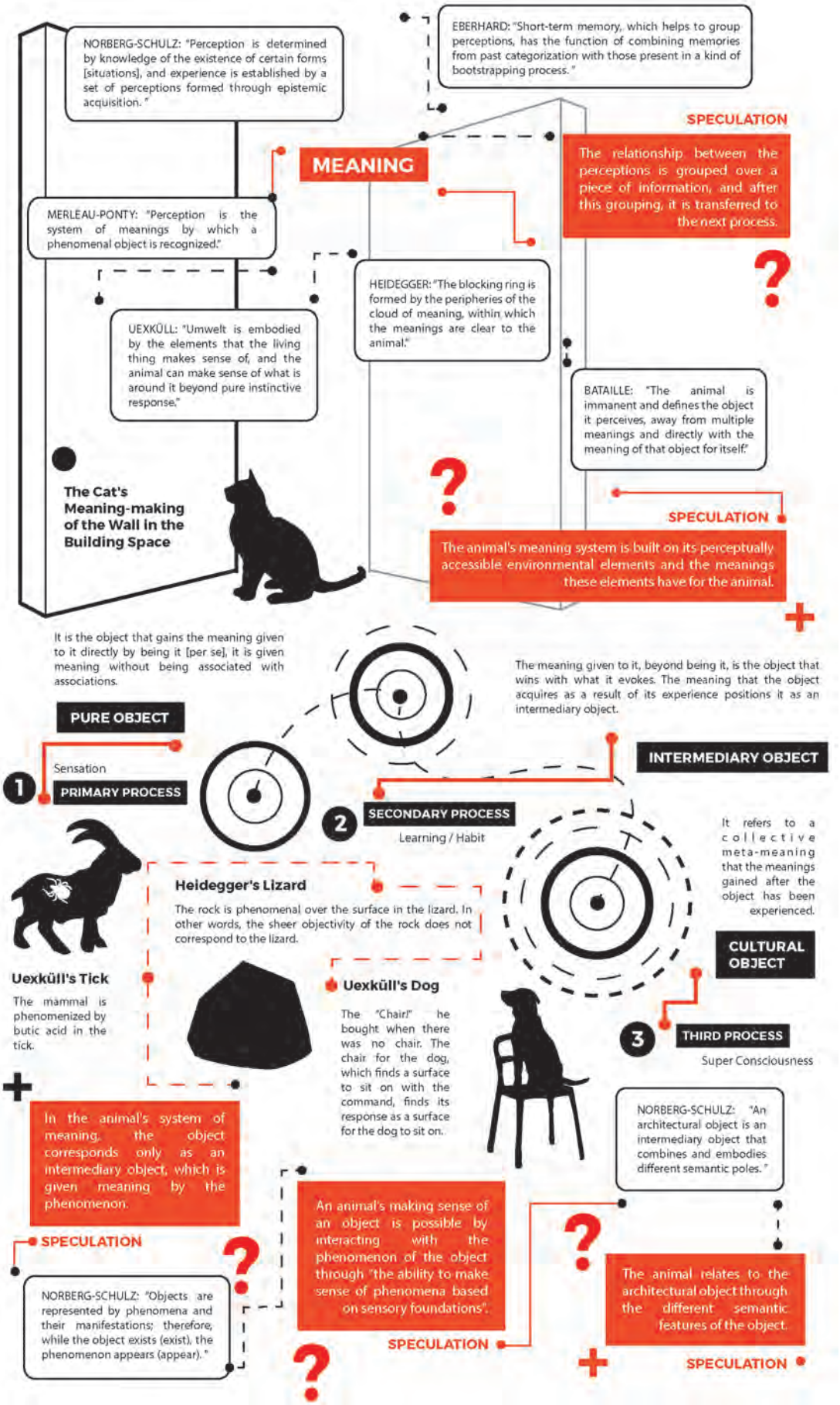

Figure 7. *Meaning-making in Affective Embodiment of the Cat.*

What assumptions can be made about the cat's ability to perceive the wall through its visual sense upon first arriving at the in-between space? How might this initial perception be understood as a form of meaning-making, and what implications could this have for the flow of knowledge established with the wall? In what ways might the animal's ability to understand phenomena based on sensory foundations contribute to the process of meaning-making?

Is it suggested by Merleau-Ponty's definition of perception as a system of meanings that animals interpret their surroundings beyond mere instinctive reactions? If so, what might be implied about the potential for animals to extend their perception processes into a semantic dimension?

How could the construction of an animal's meaning system from perceptually accessible elements in its environment and the meanings these elements represent be speculated upon? What challenges could arise in making such speculations?

Can a trans-umwelt element be engaged by an animal solely through its own existence, as itself? Based on Norberg-Schulz's object meanings and Panksepp's mind system, what might be speculated about the meaning found in an intermediary object that resonates within an animal's semantic process? What evidence is there to support or contradict this speculation?

How might the semantic relationship of an animal with intermediary objects resonate within the context of architectural experience? If it is assumed that the animal cannot interpret an object as itself, what implications might this have for the morphological, tectonic, plastic, or aesthetic value of architectural space in the animal's experiential world?

If architectural space is considered an intermediary object and animals are capable of forming semantic relationships with such objects, what could be suggested about the ways animals relate to architectural space through its different phenomenally manifested semantic features?

Based on the assumption that the cat perceives the wall through its visual sense upon first arriving at the in-between space, it can be argued that the initial engagement the cat forms with the wall, viewed as a trans-umwelt element, is shaped through the perception of physical and sensory elements reflected from the wall's existence, filtered through the cat's cognitive system. This initial perception can be seen as a form of meaning-making where the cat interprets the wall not as a complex object with multiple meanings but through a sensory-based understanding of the phenomena it produces. This suggests that the cat's interaction with the wall is guided by its pragmatic instincts, which rely on direct sensory input rather than abstract interpretation.

If Merleau-Ponty's definition of perception as a system of meanings implies that animals can interpret their surroundings beyond instinctive reactions, this could suggest that animals like the cat are capable of extending their perception processes into a semantic dimension. In this context, the cat's ability to interpret the wall might not be focused on the wall as "that wall" per se but on the sensory stimuli it provides. Considering Norberg-Schulz's object meanings and Panksepp's mind system, it can be speculated that the meaning found in an intermediary object—a wall, for instance—resonates within the animal's semantic process only if it corresponds with the sensory experiences and emotional responses of the animal. The architectural space, in this case, serves as an intermediary object that engages the animal through its phenomenally manifested features. If the animal cannot interpret the object as itself, this suggests that the morphological, tectonic, plastic, or aesthetic value created by the design elements of the architectural space may not find a meaningful counterpart in the animal's world. In addition to this, an architectural space with a trans-umwelt character can establish a relationship with an animal only to the extent that it contains elements, within the context of its design, that are accessible to the animal in its umwelt; elements and features of the architectural space that are not accessible in the animal's umwelt remain unconnected or *overlapped* rather than *intersected*, as they find no correspondence in the animal affectwise (Figure 7).

What assumptions can be made about the relationship between architectural space and an animal's emotional system when it is suggested that a space could act as a stimulant? How might Panksepp's emotional systems and Pallasmaa's focus on the body as an experiential instrument be considered to challenge or support these assumptions? In this manner, might the cat produce emotions according to the affective embodiment it has been forming with the wall?

If architectural space is considered to act as a catalyst for an animal's emotional system, it can be argued that such spaces serve as stimuli for specific emotional responses in animals. The semantic relationship that the animal forms with the space may define new interactions, depending on how and to what extent the space functions as a stimulant. To better understand the stimulating effect of architectural space, an animal's emotional systems can be broadly categorized into positive and negative groups. Certain emotional systems identified by Panksepp can be viewed as positive (such as seeking, care, play), while others as negative (such as fear, pain). Consequently, these emotional systems could influence the spatial relationships animals develop based on their experience of "being there." In this scenario, the cat perceiving the architectural space enclosed by walls and interpreting it as an environment that stimulates its seeking system might generate positive, exploratory emotions towards that space (Figure 8).

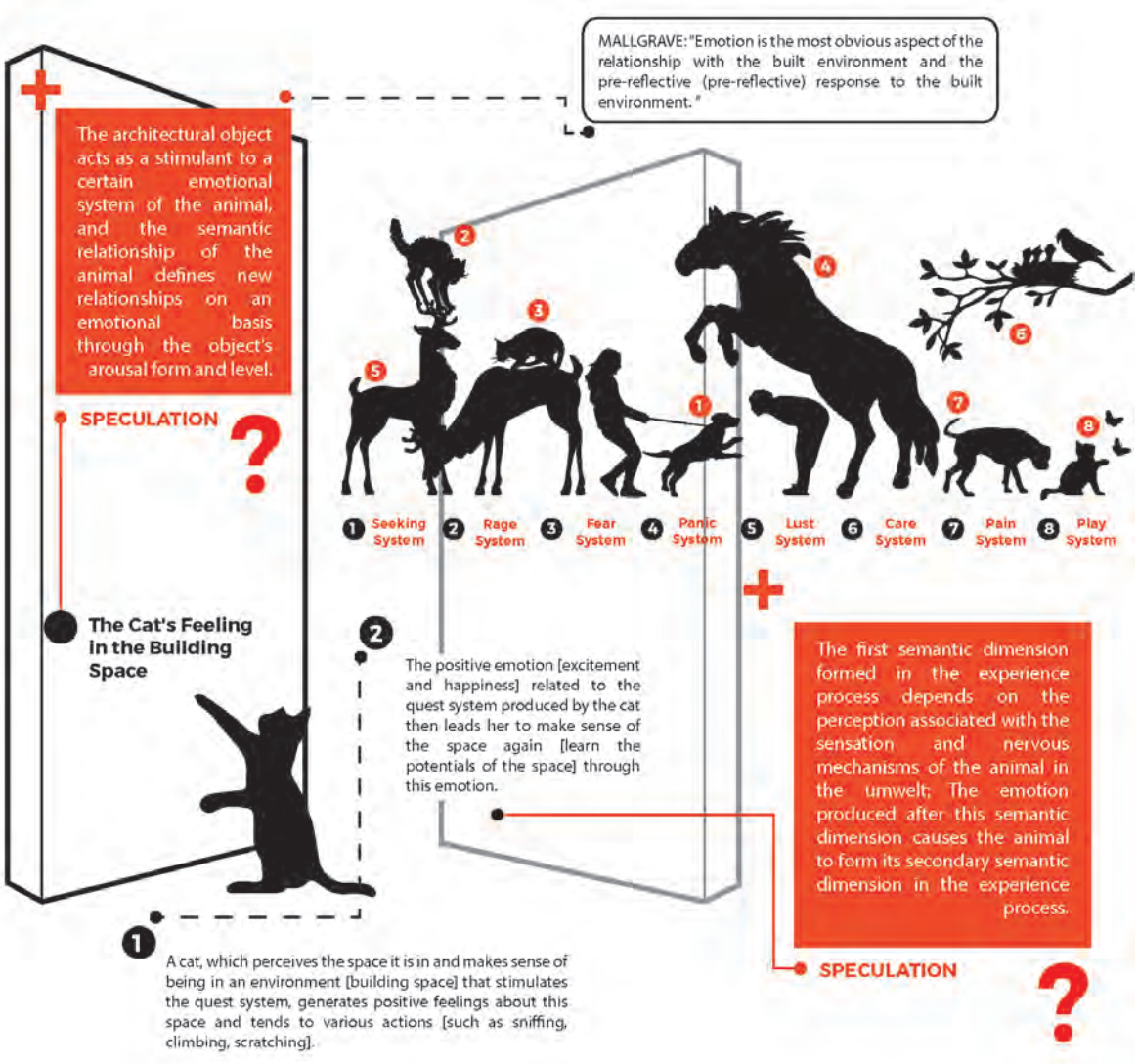

Figure 8. *Emotion in Affective Embodiment of the Cat.*

4.2. Speculative layer II: Behavior, learning, selecting, place-making

What can be understood about an animal's affective response to architectural space to determine its influence on behavior and learning? Can it be reasoned that such emotional engagements are capable of transforming a neutral environment into a meaningful 'place' by selection, within the animal's experiential world?

To understand how an animal's affective response to architectural space influences its behavior and learning, it seems essential to consider how the emotional system, triggered by the semantic process, facilitates the animal's production of actions, embodying the concept of affective embodiment. When an animal experiences a negative emotion, such as fear, in response to an architectural space, this emotion may lead to the termination of its spatial experience at that moment, manifested through its embodied action. Conversely, if the animal experiences a positive emotion, such as those associated with the seeking system, it may continue to engage with the architectural space through various behaviors, thereby extending its experiential relationship with the environment.

These embodied experiences can subsequently initiate a secondary semantic process in the animal, representing a learning phase shaped by the affective states that have emerged. For example, the cat, guided by the positive emotions generated in a space, might engage in behaviors such as sniffing, climbing, or scratching—behaviors tied to its seeking system—thus experiencing the space in a manner influenced by both its semantic relationship with the environment and the affective states activated. The positive emotion linked to the seeking system, arising from the cat's interpretation of the space, such as excitement over the potential for exploration, can facilitate learning about the possibilities that the space offers through the cat's embodied affective responses (Figure 9).

Uexküll's concepts of perception and affect images further illustrate this process. A perception image is formed by the mere existence of an element within the organism's umwelt, while an affect image arises when the organism interacts with this element and attributes a specific meaning to it. For instance, when a dragonfly circles a particular branch and lands on it, the branch is considered to become an affect image, as it is interpreted not merely as a visual object but as a suitable place to land. Using Norberg-Schulz's object-meaning framework, the branches perceived by the dragonfly can be viewed as potential landing spots, with the selected branch becoming an intermediary object that serves as an affect image.

This differentiation, as seen in Uexküll's crab narrative, can open the door to exploring the connection between affective embodiment and spatial experience. The crab's simple spatial schema, with objects of a certain size and cylindrical or conical design becoming significant in its semantic world, may suggest that the crab distinguishes between its embodied engagement with these specific forms and its interactions with other objects. This *selection* process is likely triggered by the activation of positive affective states, interpreting such objects as "something to fit inside,".

Moreover, an animal's negative emotional response to an embodied experience in a space may prevent it from initiating a new experience with a semantically similar space, even if this space is defined as a perception image. However, if the initial experience yields a positive emotion, encountering other architectural spaces with similar semantic characteristics can encourage the animal to re-engage with these spaces, driven by the positive affective states. In such cases, these spaces could become affect images, prompting new experiences based on this embodied affective relationship. If the animal chooses to re-experience the same architectural space, this act can be seen as a process of "placing" that space, further embedding its affective embodiment within that environment.

Applying this framework to the cat, during its experience of an in-between space enclosed by walls, positive emotional processes might be triggered, leading the cat to generate a secondary meaning—such as interpreting the space as one that can meet its sheltering

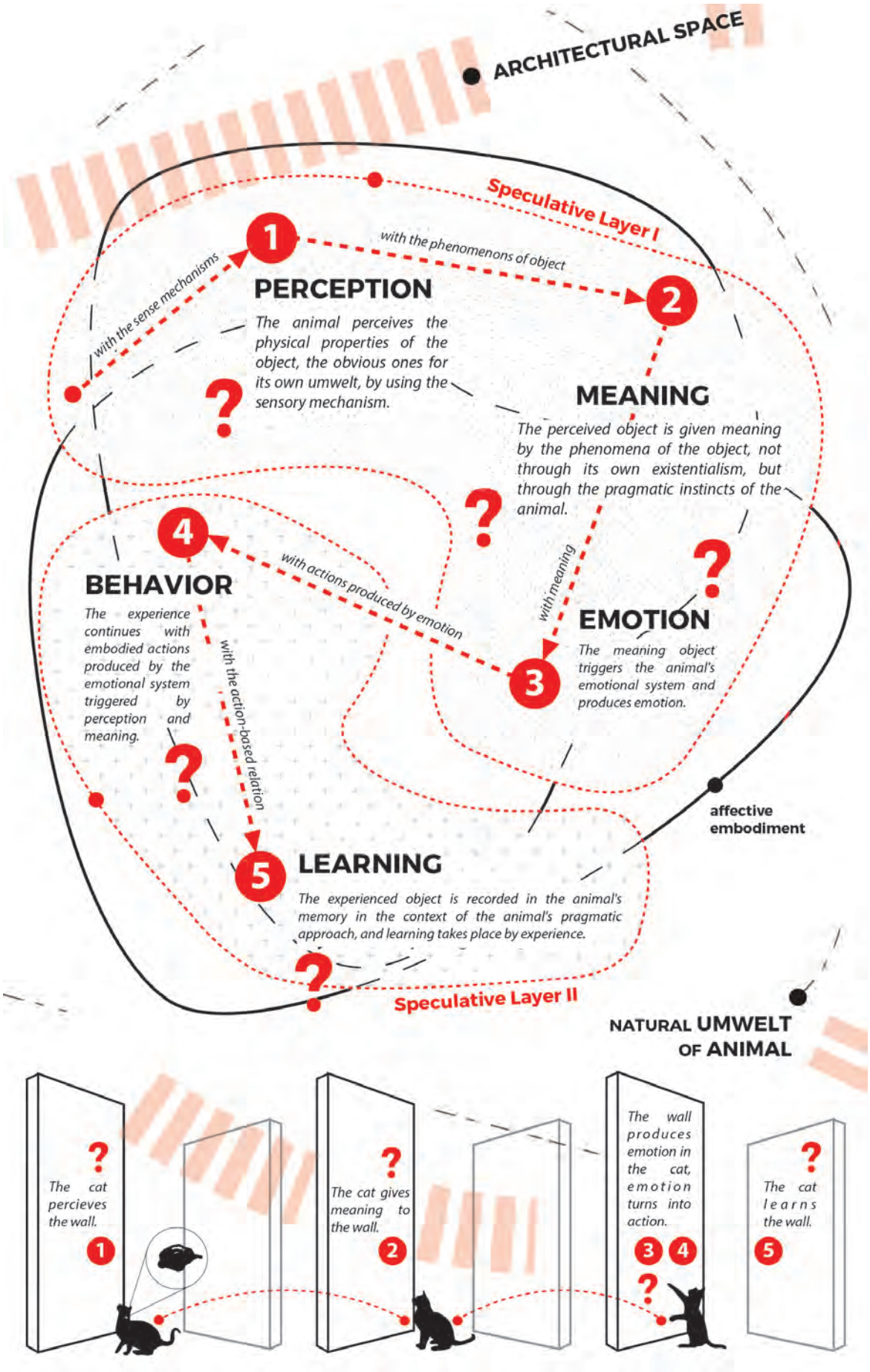

Figure 9. *Layers of Affective Embodiment Process of the Cat with the Wall.*

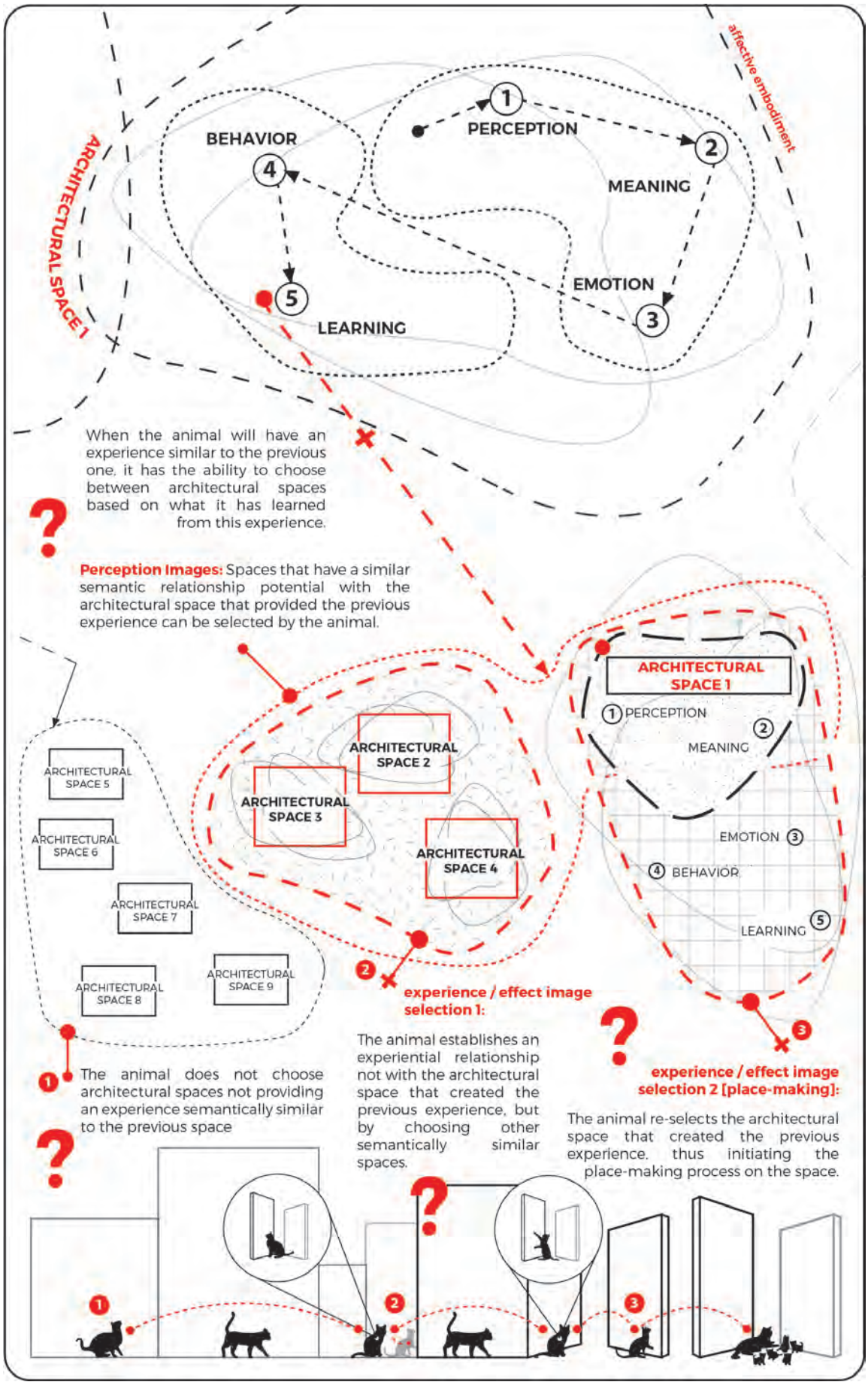

Figure 10. *Selection and Place-Making of the Cat.*

needs. This learning process, shaped by the cat's positive emotions associated with the space, can transform this space into a meaningful "place," start dwell there or even give birth. This can demonstrate how affective embodiment shapes spatial experience and contributes to the transformation of a neutral environment into a significant part of the animal's experiential world (Figure 10).

5. Conclusion

This article has studied Jakob von Uexküll's concept of "Umwelt" and expanded it through the theoretical lenses of trans-umwelt and affective embodiment, offering a more nuanced understanding of how animals experience and interact with their environments. Utilizing a speculative inquiry methodology with transdisciplinary research and Socratic questioning, this study examines how these concepts intersect to provide new perspectives on architectural spatial experience of the animal.

The concept of trans-umwelt introduces a critical extension to Uexküll's framework by suggesting that an animal's environment is not limited to its immediate sensory world but includes elements outside of it that have the potential to intersect with its experiential reality. These elements, whether natural or designed, can be spaculated to become part of the animal's world if they resonate with its affective capacities, thus becoming accessible through a process of affective engagement. Architectural spaces, for instance, can be seen as designed trans-umwelts, crafted to evoke specific affects and thereby intersect with the animal's subjective world.

Building on this, the notion of affective embodiment is crucial in understanding how these intersections occur. Affective embodiment posits that an animal's engagement with space is not a passive observation but an active, embodied process shaped by emotional and sensory responses. This perspective emphasizes that environments are dynamic fields of affect that can influence and be influenced by the organisms inhabiting them. Through this lens, architectural spaces are understood as affective spaces that play an active role in shaping an organism's -animal's- existential experience.

In light of these concepts, it can be speculated on the layers of spatial experience that an animal might undergo when interacting with an architectural space conceived as a trans-umwelt:

Perceptual Engagement involves the animal's initial sensory encounter with the space. For example, a cat entering an in-between space surrounded by the walls would perceive the walls visually and perhaps through other senses, like smell or touch. This perception may be the animal's first step in engaging with the space, turning it into a sensory-based understanding of the environment's elements. Affective Response concerns the affective response generated by this initial perception. If the space stimulates positive affective states [such as seeking], it may encourage further exploration. Conversely, negative affects [such as fear] could lead to avoidance. Behavioral Interaction and Learning involve the animal's behavioral responses to its affective states, leading to learning and adaptative post-behavior situations like selecting or place-making. If the cat feels safe and seeked, it might explore the space more fully, learning about its features and potential uses [e.g., shelter, escape routes]. This interaction helps the animal to form a deeper semantic relationship with the space, turning it into an element with specific, learned meanings based on embodied experience. Spatial Integration and Place-Making reflect the integration of the space into the animal's experiential world as a "place" with defined meaning and significance. If the cat finds that the space meets its needs or evokes positive emotions consistently, it might begin to regard this space as a shelter or a home. This transformation illustrates how architectural spaces, through their design and affective potential, can become integral parts of an animal's lived experience.

By utilizing speculative inquiry to explore these layers of spatial experience, this study demonstrates how the concepts of trans-umwelt and affective embodiment together provide a com-

prehensive framework for understanding an animal's experiential engagement with an architectural space. This framework highlights the transformative potential of spaces as relational environments that are constantly negotiated through the embodied experiences of the organisms that inhabit them.

The strategy of using transdisciplinary research and Socratic questioning to build speculative theories shows potential for academic discussions, particularly on topics that are not directly accessible to human understanding. It serves as a valuable tool for exploring areas where traditional empirical methods might fall short, enabling a more flexible and imaginative approach to research. In this way, the speculative use of Socratic questioning and transdisciplinary research can be seen as pedagogical tools, promoting a continuous process of reflection, critical thinking, and engagement with complex topics.

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The discipline unfolding: A thematic lens on disciplinary evolution of architectural design

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Abstract
Architectural design is pivotal in architecture, yet its identity remains debated—whether it aligns with art, science, or represents a novel knowledge domain lacks consensus. This paper examines the evolution of architectural design as a discipline from Vitruvius to the present, focusing on three main trajectories: Architecture Culture, Design Thinking, and Knowledge Production by Architecture. Using thematic content analysis and NVivo software, the authors analyzed 157 relevant texts to uncover key themes within each trajectory. The study found that Architecture Culture (from Vitruvius to present) was characterized as subjective, while Design Thinking (1960s-present) and Knowledge Production by Architecture (1990s-present) were portrayed as overly objective. The findings highlight the need to reconceptualize architectural design as a subjective, speculative, and intellectual field of knowledge to guide the discipline's future development.

Keywords
Architectural design, Disciplinary evolution, Architectural theory, NVivo, Thematic content analysis.

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1. Introduction

Architectural design is central to the broad field of architecture. However, the nature of the discipline has had a vague condition in the sense that there has not been a consensus on whether it is an art-like, science-like, or a totally new type of knowledge area. Nonetheless, architectural design has always been an active and important part of architecture. Emphasizing the importance of architectural design dates back to the Renaissance, when Leon Batista Alberti separated building (matter) from design (lineament) (Alberti, 1988): In Alberti's terms, matter is the material or objective aspect of architecture, while lineament is the architect's design idea (subject). While architectural design is readable through other disciplines (such as psychology, economics, politics, science, etc.), only few studies focused on the internal realms of architectural design, and tried to discover its nature through inventing, developing and analysis of architectural design ideas. In academia, it has generally been investigated through scientifically exploring design ideas' epistemological and methodological aspects. However, in practice, architectural design has normally been progressed by individual architects, who tried to form a macroscopic, holistic, and non-systematic theories for their projects. In such a condition, with divergent perspectives, it is necessary to construct an internal and discipline-specific foundation to theorize architectural design.

In line with this broad aim, the primary objective of this study is to identify a thematic structure in the extant resources emerged during the evolution of architectural design throughout history. It should be noted that instead of the boarder context of architecture, the main focus of this research is narrowly on architectural design, where developing the basic connections between academia and practice, and invention of new realms are contingent.

In this study, after an initial overview of the relevant literature, three trajectories of disciplinary evolution were hypothesized, dubbed 'Architecture Culture,' 'Design Thinking,' and 'Knowledge Production by Architecture,' and the resources relevant to each trajectory were then selected based on their popularity, reliability, influence, and theoretical foundation. A total of 157 resources underwent analysis through NVivo utilizing word occurrence counting, and after iteratively running the Word Frequency Query (WFQ) in NVivo, the 50 most frequent significant words for each trajectory emerged. These words were then used to construct the intended themes. The themes were constructed by grouping and evaluating the obtained words based on their use in the corpora.

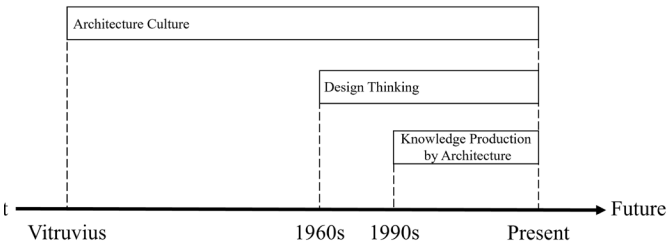

Figure 1. *Three trajectories in the disciplinary evolution of architectural design.*

2. The evolutionary trajectories in architectural design

The intricate and ever-changing nature of architecture and specifically architectural design, have always been significant hurdles for a clean description of the discipline. However, referring to the history of architecture, may offer a comprehensive overview of disciplinary evolution, which in turn, facilitates the identification and categorization of pertinent resources for the present study.

The authors have identified three trajectories for the evolution of architectural design over time, based on theoretical evidence from the history of architecture (Figure 1).

2.1. Architecture culture

The first trajectory has been called Architecture Culture, and it relates to the many cultures of practicing architecture throughout history. The expression Architecture Culture is used in the sense that conveyed in Joan Ockman's 'Architecture culture 1943-1968,' (Ockman, 1993). Concerning this trajectory, we examined the general status and implications of architecture

from antiquity to the present using architectural theory resources.

In antiquity, architecture was, somehow, included in a broader kind of knowledge of sciences, crafts, and arts, under the united title of '*Technē*.' (Parcell, 2012; Roochnik, 1996) *Technē*, in fact, refers to a sort of knowledge used by a '*tektōn*' to produce something specific. An '*architektōn*,' made up of *archi-* as chief and *-tektōn* as a builder, was a chief builder or master builder (Parcell, 2012). Parcell (2012) argues that architecture in ancient Greek had been defined as a *technē*, and Tatarkiewicz (Tatarkiewicz, 1970a) attributes a mathematical character to architecture at that time. Vitruvius, who established a systematic theoretical basis for architecture in his seminal treatise, 'Ten Books on Architecture' (Vitruvius, 2005) around 25 B.C., was also impressed by the Greek word *technē* (Parcell, 2012). Moreover, his attitudes did not change architectural practice and theory in antiquity and early Imperial era (Kruft, 1994). Thus, based on the legitimacy of Vitruvius' treatise at the time, it is plausible that architecture remained as *technē* until the Middle Ages.

In the Middle Ages, there were no general treatises on the theory of art and architecture (Tatarkiewicz, 1970b), and Western writings were mainly concerned with specific buildings (Kruft, 1994). Nonetheless, the extraneous resources could generally reflect the character of architecture in the Middle Ages. For example, architecture was included in several early encyclopedias, based on which art historians interpreted the status of Medieval architecture. Among them, 'Didascalicon' (Hugh, 1961), has been the prominent resource that placed architecture in the 'mechanical arts' category. Concerning the influence of Christianity in the Middle Ages, this classification was also impressed by the divinity aspects of humans and their inventions.

In the Early Renaissance, arts gained a degree of autonomy and were freed from their subservient role in the Middle Ages(Kruft, 1994). The advent of 'humanism' in Italy, as the Renaissance's major intellectual movement around the 13th and 14th centuries, also empowered the realistic approaches and techniques in art. Leon Battista Alberti (1404-1472) was an outstanding humanist influenced by Platonic, Noe-Platonic, Aristotelian, and Ciceronian thoughts who has referred to Vitruvius's stance in architecture, quoting and criticizing him (Grayson, 1957; Kruft, 1994). Nonetheless, being far away from *technē*, Alberti, for the first time, highlighted the distinction between architectural design and building in his famous book 'On the Art of Building in Ten Books' (Alberti, 1988). While Alberti's treatise is an outstanding reference for architectural theory in the Renaissance, it seems insufficient to fully address the state of architecture in Renaissance. Maybe the more comprehensive image of Renaissance architecture is reflected by Giorgio Vasari (1511-1574) in his book 'Lives of the Most Excellent Painters, Sculptors, and Architects' (Vasari, 1996). In this book, Vasari provided artists' biography and simultaneously grouped architecture with sculpture and painting as the physically made arts. In his book, Vasari called these three arts the arts of '*disegno*' (Vasari, 1996). In its original context *disegno* is translated as 'drawing' and 'design' (Baxandall, 2003; Parcell, 2012). Vasari's concept of *disegno*, theoretically, peaked in the sixteenth century (Parcell, 2012) in Europe and shaped the character of architecture in the Renaissance as the setting for painting and sculpture, or in Vasari's words, as the art of *disegno*.

The characteristics of architecture in the eighteenth century and Enlightenment have mainly been influenced by its situation in France. Founding the *Académie Royale d'Architecture* in France in 1671 by Louis XIV (1638-1715) was a 'decisive turn' through which an 'artistic path independent from that of Italy' came to emerge in France (Mallgrave, 2006). Nonetheless, the theoretical texts in France, England, and later, in Italy and Germany, introduced a new term in which architecture was included (Kristeller, 1951). Architecture in the Enlightenment was known as fine art (Kristeller, 1952; Parcell, 2012). Parcell (2012) argues that, at first, architecture was marginal in the fine arts, while painting, sculp-

ture, poetry, and music were the core fields of fine arts. However, the publication of the first volume of the *Encyclopédie* (Diderot et al., 1970) in 1751 formally brought architecture into the fine arts (Kristeller, 1952). Since the late eighteenth, architecture 'became universally recognized as a fine art' (Tatarkiewicz, 1980, p. 162). Also, in the Enlightenment, the Academy attempted to promote the status of the architect from the builder to the liberal professional (Armstrong, 2017). In this respect, Emil Kaufmann by investigating the work of 'three revolutionary architects' (Kaufmann, 1952) underscored the efforts for 'formal autonomy of architecture' in the Enlightenment. Enlightenment's architectural thoughts were an introduction to modern architecture.

Modern architecture was rooted in the late eighteenth century (Curtis, 1982). The Enlightenment philosophers came up with the 'project of modernity' in the 18th century and their goal was 'to develop objective science, universal morality and law, and autonomous art according to their inner logic' (Foster, 1983, p. 9). Modern architecture grew out of the need to balance an idealized view of society with the powers of the Industrial Revolution(Curtis, 1982). Having a radical break with the past, it also provided possibilities for the fundamental principles of architecture to be reconsidered in new ways (Curtis, 1982, p. 6). Later, around the mid-twentieth century, modern theory in architecture, 'including formalism and ideas of functionalism (form follows function), the necessity of the radical break with history, and the honest expression of material and structure' (Nesbitt, 1996, p. 16), placed strong critical views on modern architecture.

Although architecture in modernity was a relatively autonomous field, due to its immaturity, 'architecture, both built and projected, has notoriously been discussed and debated' (Hays, 1998) in the postmodern era. In such a context, architecture pushed to be involved in the imported theoretical paradigms like phenomenology, linguistic theory (semiotics, structuralism, poststructuralism, and deconstruction), Marxism, and feminism, in Kate Nesbitt's terms (Nesbitt, 1996). The rapid confrontation of architecture with the rich imported paradigms dropped the status of architecture to a vague situation, particularly in academia, and led to the separation of academia and practice. Architecture began to be taught and researched under different departments such as social sciences, humanities, arts, and engineering. However, this is interpreted as a shift from the center to the margin of architecture in the postmodern era (Tschumi, 1992).

The ambiguous situation of architecture in the postmodern time, and the failure of the discipline to improve humanity and society (Sykes, 2010), was an alert for another probable shift in architecture. Besides, in architectural practice and design, the digital culture had already started to make a remarkable shift. Actually, electronic technologies were changing society, economy, culture, and everyday life in the 1990s, and architecture was not an exception (Carpo, 2017). In architecture, the change started with the speculations on 'compositional complexity' (Lynn, 1993, p. 9), and was later followed by a shift in 'the very logic of thinking, doing and making design' (Oxman & Oxman, 2014, p. xxi). With these practice-based shifts, the postmodern theory of architecture was unable to 'occupy its previous role, and thus it too has started to shift [like practice]' (Sykes, 2010, p. 27). This posed a significant challenge to the status of architecture as a discipline. In 1997, Sanford Kwinter, in his talk at the 'Anyhow ' conference (held by Anyone corporation) in Rotterdam, warned that '… architecture has begun to vanish as a discipline, and some of us are not mourning…' (Kwinter, 1998). He then declared that '[architecture] is becoming an organon, that is, a system of investigation, invention, and technique' (Kwinter, 1998). Again, this statement was potentially a signal for a new shift in architectural culture, where architecture becomes a 'means to gain knowledge' (Nilsson, 2005) or even a 'form of knowledge' (Tschumi, 2007). This was while a new mode of knowledge production, as 'transdisciplinary,' was already introduced in academia in

1994 to deal with the world's increasing complexity (Gibbons et al., 1994). A prerequisite to that was the disciplinary maturity to be able to fuse with other disciplines (Dunin-Woyseth & Nilsson, 2011). Integrating theory and practice was seen as the primary concern in the disciplinary development of architecture (Doucet & Janssens, 2011; Fraser, 2013; Hensel & Nilsson, 2016).

Less than nine years ago, in his prologue to the special issue of Log magazine on 'stocktaking' of architecture in 2013 (no 28), Anthony Vidler referred to Reyner Banham's argument on the condition of architectural design, theory, and practice in 1960 (Banham, 1960). Vidler stated that the same questions 'have emerged in a more or less transformed state' at the present time (Vidler, 2013). The questions manifest the profound problem of the discipline today: the relation of theory (as well as history and criticism) and practice (as well as design) in architecture. The efforts aiming to integrate theory and practice in architecture for producing a new form of knowledge (Collins, 2014; Fraser, 2013; Hensel & Nilsson, 2016, 2019) appear to be the recent endeavors to disciplinary developments of architecture.

2.2. Design Thinking

Design Thinking has been suggested as the second main trajectory that has obviously influenced the disciplinary development of architecture, initially in academia and subsequently in practice. The trajectory began in the 1960s, notably with the Design Methods Movement (Chris Jones & G. Thornley, 1963) in 1962, when design methodology was recognized as a field of systematic inquiry. Advancements in this particular course of study have yielded insights into architectural design ideas and processes and so includes the literature germane to the aims of this investigation.

The noteworthy academic researches on design methodology as a field of inquiry launched in the 'Conference on Design Methods' in 1962 (Chris Jones & G. Thornley, 1963). Although in this conference, the term 'design' was used in a variety of contexts like engineering and product design, architectural design was one of the central fields whose in-depth study was launched by this movement. The movement's main goals, such as comprehending and then computerizing the design process, and externalizing it for team participation from the concept generation stage (Alexander, 1971), were very relevant in the case of architectural design.

In the late 60s, the scholars' desire for the scientific foundations of design together with the ongoing developments in scientific theories, such as Kuhn's notion of paradigm shift (Kuhn, 1970), evoked an interest in investigating a logical relationship between design and science. Even on some occasions, efforts were made to convert design from an artistic discipline to a scientific one (e.g., Dixon and Finger, 1989). However, some outstanding researchers were trying to make distinctions between design and science (Alexander, 1964; Gregory, 1966; Simon, 1969). On this topic, Nigel Cross (1993) suggested three substantial approaches as Scientific Design; Design Science; and Science of Design. Cross acknowledges that 'Scientific design refers to modern, industrialized design… utilizing a mix of both intuitive and non-intuitive design methods' (Cross, 1993). According to Cross, design science treats 'design in some sense as a scientific activity itself' (Cross, 1993). Also, 'science of design, refers to that body of work which attempts to improve our understanding of design through scientific (i.e., systematic, reliable) methods of investigation' (Cross, 1993), he concludes. By this implication, Cross' suggested definitions enabled a vast range of researches from the first generation (the 1960s) to the next generation of design studies in various fields to be classified.

In architectural design, the notable example of combining science with design is applying 'cognitive psychology' to design studies. Firstly made by Charles Eastman (1969), the term Design Cognition (also known as design thinking) was used to refer to the investigation of human information processing (i.e., computation) during the architectural design activity. These developments in design studies even offered a new definition of design as a

'form of human cognition' (Goodman, 2013).

According to Rittle and Webber (1973), the 1970s was the decade for the second phase of design studies development. In the case of the architectural design process, the 1970s is of particular importance for such advancements. Omer Akin (1986) identified three categories for architectural design studies during the early 1970s: 'empirical studies'; 'theoretical studies of design'; and 'design education studies'. In the 1980s, a shift from rule-based prescriptive studies of design towards descriptive studies appeared in the field of design. The descriptive studies, indeed, provided the opportunity for developing computational tools in design. Also, in these years, design researchers recalled the cognitive psychology methods to conduct empirical studies and observe the design behavior, particularly in architecture (Rowe, 1987; Schön, 1984). In his book, 'The Reflective Practitioner' (1983), Schön suggested that conscious analysis of the design activity, or in his words, 'reflection-in-action,' in the professions like architecture, will lead to producing 'the knowledge of problems and solutions.' Generally, Schön's studies in the 1980s revealed the value of the profession and its associated practical knowledge in architecture and design.

Since the 1990s, studying, modelling, and analyzing the design activity (Cross et al., 1997; Dorst & Dijkhuis, 1995), especially in the cognition level and ideation phase of design, was the focal point for architectural design researchers (Bilda et al., 2006; Goldschmidt, 1991; Mao et al., 2020; Scrivener et al., 2000; Suwa & Tversky, 1997). This sort of systematic study in the past years has resulted in 'computer-aided architectural design' developments, where artificial intelligence, cognitive psychology, and design are combined. Digital culture and technology brought new approaches to architectural design in the 2000s and the 2010s, such as digital fabrication and parametric design (Camburn & Wood, 2018; Ercan & Elias-Ozkan, 2015; Mathias et al., 2019; Oxman, 2008, 2017). Moreover, the studies on (architectural) design thinking have recently been extended to the subcategories like design expertise (Atman, 2019; Cross, 2004; Humphreys et al., 2008; Lawson, 2004; Luck, 2012; Smith, 2015), design practice and profession (Hoolohan & Browne, 2020; McDonnell, 2011; Schønheyder & Nordby, 2018; Yang et al., 2005), design research, theory and knowledge production (Cash, 2018; Friedman, 2003; Galle, 2008; Love, 2000; Luck, 2019; Uluoğlu, 2000; Wolmarans, 2016), and the discipline-specific culture in design (Cross, 2019; Luck, 2019).

2.3. Knowledge production by architecture

The last trajectory is dubbed as Knowledge Production by Architecture, and it begins in the 1990s, as depicted in Figure 1. The authors identified this trajectory based on recently emerging trends in both the Architecture Culture and Design Thinking trajectories. The relevant literature in this trajectory put forward the idea of 'architecture as a medium for knowledge production' (Belderbos & Verbeke, 2005; Doucet & Janssens, 2011; Hensel & Nilsson, 2019; Kwinter, 2008; Tschumi, 2007). Additionally, there has been an upward trend in theorizing this subject to develop a fundamental connection between academia and practice, and hence, has gained significant traction within architectural design communities.

Reviewing the state of Architecture Culture and Design Thinking trajectories unveiled the gradual formation of another trajectory in the theoretical development of architectural design: Knowledge Production by Architecture.

'Architecture as a discipline constitutes a field where highly different kinds of knowledge amalgamate' (Dunin-Woyseth & Nilsson, 2011). This characteristic has already linked architecture to other disciplines and led to a dominant interdisciplinary research tradition for producing knowledge in academia. In the report of Formas (Swedish Research Council for Sustainable Development) in 2006, interdisciplinary research has been explained 'as a means to share disciplinary knowledge in order to create new concepts and theories, create a product, or

solve specific problems' (Evaluation of Swedish Architectural Research 1995–2005, Report 7, 2006). However, interdisciplinary research in architecture for its excessive dependence on the scientific paradigms brought about 'too academic researches', making the 'architects incapable of using history as a tool to invent a culture for architecture' (Vittorio Aureli, 2013). Consequently, the in-depth collaboration between architecture and other imported disciplines like social science shifted the area of concentrations from the center to the margins of architecture (Arets & Zaera-Polo, 2003; Belderbos & Verbeke, 2005; Peil, 2005; Radu, 2005; Versteegh, 2005). The critics of this situation (Arets & Zaera-Polo, 2003; Belderbos & Verbeke, 2005; Fraser, 2013; Kwinter, 1998), were persisting on the fact that 'architecture's complex engagement with the world, acting as it does as both profession and discipline, requires it to deal with a broad range of disciplinary and practical forms of knowledge' (Doucet & Janssens, 2011). Their belief was that the imported disciplines undermined or hindered the disciplinary development of architecture. In such wise, the rise of the transdisciplinary mode of knowledge production (Gibbons et al., 1994) preached new hopes for architectural researchers. 'The term transdisciplinarity was coined to give expression to a need to transgress disciplinary boundaries and is interesting in relation to such combinatory and inclusive discipline as architecture' (Hensel, 2012). In this manner, transdisciplinary knowledge production suggested a strategy more congruent with architecture, as it 'entails a fusion of academic and non-academic knowledge, theory and practice, discipline and profession' (Doucet & Janssens, 2011).

Furthermore, since 'transdisciplinarity is nourished by disciplinary research' (Dunin-Woyseth & Nilsson, 2011), it necessitates development and mastery in disciplinary knowledge. These new insights intrigued the studies on architecture-specific knowledge production methodologies (Fraser, 2013). An example of these attempts was to examine the possibility of doctoral research through architectural design (Belderbos & Verbeke, 2005). Later, publications, such as Harvard Design Magazine (Mostafavi, 2012) and TU Delft's Footprint journal (Hauptmann & Schrijver, 2012; Kaminer & Stanek, 2007), specifically focused on this subject and elaborated on that. Recent studies have drawn on the 'practice-led research' or 'research by design' to examine the knowledge production opportunities through practice and architectural design (Collins, 2014; Hensel & Nilsson, 2016, 2019; Verbeke, 2017). However, this shift in focus may inadvertently downplay the subjective aspects of architecture.

3. Methodology

This study employes thematic content analysis that focuses on identifying themes within textual data. This method was chosen over other methods as the primary aim was to explore and describe the included themes in the architectural design literature, and it allowed for a flexible yet systematic analysis of the data and aligns with the study's objectives.

3.1. Procedure of theme extraction

The procedure of theme extraction involves: a) identifying the trajectories (as already described); b) selecting and collecting the relevant resources within the trajectories; c) importing the resources into an assistant software namely NVivo; d) retrieving the most often occurring words using Word Frequency Query (WFQ) operator of NVivo; e) grouping the acquired words according to their meaning and use in corpora; and f) creating the final themes based on the retrieved word sets.

3.2. Selection of the resources

Once the trajectories of disciplinary evolution were determined, the procedure for data collection started by choosing the relevant resources in each trajectory. This phase of the study is particularly difficult in light of the study's goals and methodology, as the researchers' discretion was required in making the selections in the absence of any legitimated metrics. Hence, a semi-systematic approach was used to mitigate bias.

First, in order to conduct an exten-

sive search, a list of broad keywords and phrases were determined based on their prominence and recurrence in the trajectories (Table 1). A two-step qualitative criteria set was then developed to finalize the general search results. In the first stage of the formulated criteria, some broad characteristics were taken into account about the resources of all trajectories. These characteristics included: the academic reputation and validity of the resource; the academic reputation and validity of the author(s); the relevancy to the identified trajectories; availability of the resource; and its import-ability into NVivo. Moreover, all materials ought to be in English (either original or translated). Subsequently, resources that met the criteria for the initial stage were selected for further assessment in the second phase. The subsequent stage of the resource evaluation was predicated on the distinct criteria pertaining to every trajectory, as delineated below:

- Resource selection criteria for Architecture Culture: include the authoritative and acknowledged treatises, books, essays, manifestos, and papers involved in architectural theory, starting from Vitruvius to the present. The resources involvement in architectural theory is assessed based on the definition of theory by Kate Nesbitt (Nesbitt, 1996, pp. 16–17) because of its clarity and generalizability. Therefore, the resources with speculative nature that offer new thought paradigms to architecture belong to this trajectory.
- Resource selection criteria for Design Thinking: include the texts on design studies, starting from 1962 (Design Method Movement) to the present. Due to the overlaps, the resources in both general and architectural contexts are acceptable. The written materials that provide an in-depth understanding of design methods and processes, with scientific and non-scientific nature, and are basically specific to architectural design should be selected.
- Resource selection criteria for Knowledge Production by Architecture: include the resources focused at explaining the relationship between architecture, design, and knowledge, mainly from the 1990s to the present. The studies that treat design and architectural design as a means of producing knowledge, and the resources concerning research-by-design, practice-led-researches, research-led-practice, should be chosen.

Table 1. *Keywords and expressions for the general search of the literature.*

Trajectory	Keywords and expressions
Architecture Culture	- Architectural theory from Vitruvius to the beginning of postmodernism - Postmodernism - Digital turn and technology - Disciplinarity, research, practice, and influence of the pragmatic views
Design Thinking	- Design methods and design thinking - Design and science, design cognition and early phase of design - Architectural design thinking, architectural design process, and idea
Knowledge Production in Architecture	- Knowledge and research by design - Knowledge production in architecture

3.3. Finalized resources

The number of the finalized resources was a major limitation of the study. The authors had access to a limited number of materials and thus they were unable to apply the method to a vast dataset. Conducting the formulated criteria in this study took about two years and resulted in the acquisition of 157 materials across all trajectories, ensuring that they were as comprehensive and relevant as possible. They include 91 resources in Architecture Culture, 42 resources in Design Thinking, and 24 resources in Knowledge Production by Architecture. More than 92000 pages of literature are included in these items. Appendix A contains a complete list of the resources examined in this work.

3.4. Analysis method

When the materials were gathered, they were all converted to text-recognizable PDF forms and uploaded to NVivo for analysis. In NVivo, the resources were first organized in their appropriate trajectories (folders) and their contained keywords (subfolders) presented in Table 1. Then, Word Frequency Query (WFQ) in the software was applied to the resources to identify the most frequent words. WFQ in NVivo has three major parameters, including the number of the displayed (most-frequent) words, the minimum length of the words (letter), and type or

Table 2. *Excluded central words in WFQ process.*

Trajectory	Excluded central words in WFQ procedure
Architecture Culture	Architecture
Design Thinking	Architecture; Design; Thinking; Process
Knowledge Production in Architecture	Knowledge; Architecture

Figure 2. *NVivo application process for the study.*

Figure 3. *Word Tag outputs for the trajectories.*

grouping of the words (e.g., exact match, stemmed words, synonyms, etc.). WFQ was tried out in several settings to fine-tune the settings. Ultimately, a determination was reached to establish the exhibited quantity of words at '50', with a minimum word length of '3' letters, and a grouping preference of 'exact matches'. This was done with the intention of producing a refined catalogue of distinct and noteworthy words. The adjustment made the resulting word list non-repetitive and relevant. Following the completion of the adjustments, the WFQ was run for each sub-folder. Because the program allows checking the use of each word in its context, every displayed word may be approved or denied as a significant word. If the word is approved, it will be added to the list, and if it is denied, it will be removed and added to the Stop Words list in NVivo. For example, irrelevant words like 'have', 'example', 'another' and alike were added to Stop Words list. Following many iterations of WFQ for each sub-folder and subsequent adjustments, a set of 50 most frequently occurring words was validated for each. To generate the ultimate list of the words for the trajectories, WFQ was then run for each folder (trajectory). During this phase, some words appeared to have ambiguous usages in the corpora, necessitating a thorough review of almost the whole database before determining whether to accept or reject them. It should be noted that, the authors simply eliminated the irrelevant words from the process at this point, and all removed words are accessible in the Stop terms list, as previously stated. In addition to the irrelevant words, the central words for each trajectory which their highest frequency was evident, were added to Stop Words (Table 2).

Eventually, after time-consuming iterations, the final words' list for the trajectories were refined and completed. The process of utilizing NVivo for this research has been depicted in Figure 2.

4. WFQ analysis outputs

NVivo's WFQ procedure yielded a list of fifty words, with their counts and examples of their use in context, for every trajectory (see Appendix B). Although these words had been WFQ's primary outputs, its secondary outputs were also used here. First, there is the Stop Words list for verifying which words were removed from the query. Secondly, there are Word Tag diagrams, which serve as visual representations of the ultimate lists (Figure 3). In these diagrams, the words' count is visualized by their font size.

5. Thematic representation of the discipline

The analysis in this study revealed 150 most frequently occurring significant words as the highlighted concepts within the investigated literature. Concerning their essential significance in the discipline, the highlighted concepts might give rise to the themes specific to architectural design. The themes achieved by this

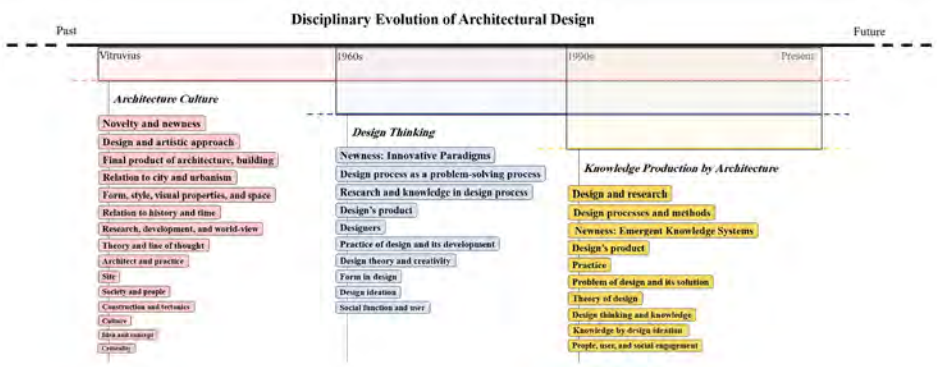

Figure 4. *Thematic diagram for disciplinary evolution of architectural design.*

study are resulted from clustering these concepts, and are relevant to the disciplinary trajectories, and can construct a thematic diagram for disciplinary evolution of architectural design (Figure 4). In this diagram, the degree of importance for each theme is indicated by its font size as well as the themes' descending order. The details of each theme, i.e., the theme's rank, the included significant word(s), and its (their) usage samples in their context, are available in Appendix C.

Based on the findings, 50 words in every trajectory gave out 15 themes in Architecture Culture and 10 themes in either Design Thinking and Knowledge Production by Architecture, as indicated in Figure 4. The degree of importance of each theme in the trajectories help clarity and thus identifying the essence of each trajectory. Interestingly, the first three themes of the trajectories can clearly reflect their very nature in the disciplinary development of architectural design. These themes are called key themes, and the other themes which support the key themes are named subordinate themes.

5.1. Key themes of the trajectories

As mentioned, for each trajectory, there have been three key themes. Architecture Culture puts a striking insistence on '*novelty and newness*,' symbolizing a tremendous yearning for pure innovative creation and touching the unexperienced forms, methods, meaning, etc. The frequent references to 'new', 'contemporary', and 'today' reflect an ongoing commitment to evolving architectural practices, ensuring they stay relevant and forward-thinking. This focus on novelty encompasses new architectural forms, contemporary design practice, and today's discourse, as well as fresh theoretical approaches. By embracing change and seeking out new possibilities, architecture can respond to the dynamic needs of contemporary society, fostering an environment of creativity and progress in the discipline. The second key theme in Architecture Culture, is '*design and artistic approach*' which highlights the integral role of artistic principles within architectural design. References to 'design' and 'art' signify a deep engagement with aesthetics and the creative thinking process, treating architecture as an expressive art form. In a discipline-specific sense, it can be interpreted that architectural design literature places the highest value on artistic intuition and subjectivity over technical and objective aspects hinted by the third key theme, '*final product of architecture, building*'. This third key theme explores the diversity and complexity inherent in different building types and deals with production. Terms like 'building,' 'house,' and 'museum' illustrate the range of structures and spatial production process architects engage with. The theme emphasizes objective aspects of architectural design, and highlights the final product of architectural processes.

For Design Thinking, the first three themes can characterize its essence. In this trajectory the first theme, '*newness: innovative paradigms,*' highlights the emphasis on innovation and the adoption of new paradigms within design thinking. The only included

word in theme, 'new,' indicate a focus on creating new models, methods, visual experiences, products, and so on that address contemporary challenges. Concerning the content of the theme, it reflects a commitment to advancing design through the development of new frameworks and theories of production. This theme is immediately followed by the second theme, '*design process as a problem-solving process*,' demonstrating a strong focus on problem(s) and solution(s) in design literature and the problem-solving nature of design thinking. The content of the theme translates it as a systematic process to find innovative solutions for ill-defined problems as well as to re-conceptualize problems and solutions in design. This approach to design implies the potential of systematic and mostly scientific ways of inquiry in design challenges. The third key theme in Design Thinking, '*research and knowledge in design process*' emphasizes the critical role of research and knowledge in informing the design process. The included words in the theme, like 'research,' 'information,' and 'knowledge' reflect the reliance on empirical data, theoretical models, and systematic study to guide design decisions. This theme points to various research methods, from empirical research to experimental studies, highlighting the application of scientific methodologies in developing informed design solutions.

In Knowledge Production by Architecture, '*design and research*' is the first key theme and involves eleven highlighted words from the investigated literature. This theme strikingly emphasizes the integration of design and research in architectural design. In this theme, also, the involved words such as 'design,' 'research,' and 'information' reflect a focus on the role of informed and systematic inquiry in advancing scientifically sound solutions for architectural design. The second key theme, '*design process and methods,*' refers to the diverse processes and methods involved in architectural design, emphasizing iterative, analytical, and methodological approaches. In particular, references to 'process' and 'methods' signify the importance of developing and refining design methods in knowledge production. This theme underscores the possibility of knowledge production through various design processes, from conceptualization to implementation, highlighting their importance in addressing architectural challenges. In Knowledge Production by Architecture, the first two themes, support the third key theme, namely, 'newness: emergent knowledge systems'. This theme highlights the emergence of new knowledge systems within architecture, focusing on innovative curricula, methodologies, and conceptual models. The only included word, 'new,' indicate a commitment to developing fresh perspectives and advancing architectural theory, practice, and education. This theme emphasizes the continuous evolution of architectural knowledge, encouraging the exploration of new ideas, techniques, and technologies.

5.2. Subordinate themes of the trajectories

Subordinate themes can be viewed as interconnected themes that provide elaboration on the key themes. Subordinate themes can, therefore, be described in terms of characteristics of each trajectory delineated by the key themes.

The achieved themes in Architecture Culture endorse an innovative artistic engagement with the '*final product of architecture, building*' by taking into account its '*relation to city and urbanism*,' for manipulation of '*form, style, visual properties, and space*'. It implies that in Architecture Culture, the role of city as the context in creation of space and its visual characteristics, has received greater attention than other issues. The theme, '*relation to history and time*,' then, necessitates the significance of temporal circumstances and history (e.g., precedents, history of possibilities, history of cities, etc.) in architectural design ideas. Moreover, by means of '*research, development, and worldview*', these themes have the potential to offer a '*theory and line of thought*' to be incorporated into the work of an '*architect and practice*'. Drawing from this interpretation, it can be argued that the examined corpuses in Architecture Culture explicitly tackled the interplay

between academia and practice, and their shared objective of constructing theory and feeding various lines of thought, the characteristics of which are summed up primarily by the major and minor themes. Relying on the findings, the subordinate themes from '*site*' to '*criticality*' are less autonomous themes in Architecture Culture in a discipline-specific sense; yet, they can be regarded as constituent components of the more significant themes of the trajectory. From an architecture-specific standpoint, the themes '*site*', '*society and people*', '*construction and tectonics*', and even '*culture*' perhaps due to their interdisciplinary character, may not necessarily have an essential position in generating architectural design ideas, but rather can be associated with other themes for handling the ideas. The last two themes in Architecture Culture, '*idea and concept*' which refers to the highlighted word 'idea' (ranked 33 out of 50), and 'criticality' which encompasses the highlighted word 'critical' (ranked 36 out of 50), based on their respective contents (see Appendix C) can be considered as an excerption from some of the earlier themes. For example, the overlap between '*idea and concept*' and '*design and artistic approach*' is evident. Similarly, '*theory and line of thought*' can be an umbrella theme for '*criticality*'. As stated, the interconnection between the obtained themes can signify the importance of a subordinate theme within the earlier themes.

In Design Thinking, '*design's product*' is the first significant subordinate theme. Given the nature of the trajectory, it demonstrates that for design theorists and researchers, systematic processes and methodologies of design are of greater value than the ultimate product of design. When it comes to the following themes, '*designers*', '*practice of design and its development*', and '*design theory and creativity*' a notable deficiency in attention to the subjective aspects of design can be more evident. These minor themes of Design Thinking, have the potential to complement the highly significant key themes in Architecture Culture (i.e., '*novelty and newness*' and '*design and artistic approach*'). However, the findings indicate that a concrete approach takes precedence over an abstract approach in Design Thinking trajectory. Even, the subsequent theme, '*form in design*', which seems to be a central theme based on its content (see Appendix C), remains among the least significant themes. Moreover, the last themes, '*design ideation*' and '*social function and user*' can be construed as complementary themes for the preceding ones in both practical and theoretical aspects. Drawing upon the status of Design Thinking, and the identified themes, it can be argued that this trajectory prioritizes the objective dimension of design and supplies a scientific approach to architecture.

The involved themes in Knowledge Production by Architecture are greatly influenced by design thinking developments, as the key themes in this trajectory indicate. Similar to Design Thinking, '*design's product*' is the most significant minor theme in Knowledge Production by Architecture. According to the content of the theme and in an architectural sense, buildings and constructed projects, are emphasized as mediums for generating new knowledge. Next theme, '*practice*' referring to design-related activities and experiences of individual designers and design teams, shows the crucial (albeit small) function of practical aspects in producing knowledge. Based on the obtained themes, producing knowledge by architectural design seems to be subjected to considering its associated thought as the '*problem of design and its solution*', as a subordinate theme. Surprisingly, this theme has been appeared before '*theory of design*' which involve eight highlighted words about architectural design theory such as 'time', 'space', 'structure', and so on. Perhaps this is influenced by the tangible characteristics of design process as problem solving activity rather than the materialization of a subjective theory. The content of the next subordinate theme, '*design thinking and knowledge*' (see Appendix C), also, reflects the role of design thinking, design education, design activities, and creativity on form and visual properties in producing knowledge by architectural design. Similar to Design Thinking, '*knowledge*

by design ideation' and '*people, user, and social engagement*' are placed on the least significant level in this trajectory. The theme '*knowledge by design ideation*' emphasizes the value of design ideas in knowledge generation, and the theme '*people, user, and social engagement*' reflects the importance of users when it comes to producing knowledge via architectural design. Also, resembling to the other two trajectories, in Knowledge Production by Architecture the themes on the lower levels can provide additional elaboration for the themes situated on the higher levels.

6. Conclusion

This paper reports an endeavor for identifying a thematic representation of the disciplinary evolution of architectural design, examining literature from Vitruvius to the present. Resources pertinent to the determined trajectories of disciplinary evolution (Architecture Culture, Design Thinking, and Knowledge Production by Architecture) were collected and analyzed using thematic content analysis to uncover the related themes.

It should be noted that this study focuses solely on architectural design, and considering the entire architectural discourse may yield more comprehensive results. Additionally, due to the qualitative nature of this investigation, the researchers' discretion was required at multiple phases; consequently, the results may be influenced by the researchers' worldview. Furthermore, accessibility to resources, the absence of reliable numerical records for the resources, as well as English being the sole language of the dataset were other limitations in this research.

This study led to the identification of key themes in each of the three trajectories. Based on their content, these themes revealed distinctions between the trajectories. The identified themes assigned a subjective character to Architecture Culture (Vitruvius-present) while attributing an excessively objective character to both Design Thinking (1960s-present) and Knowledge Production by Architecture (1990s-present). This way, the findings shed light on the character of architectural design as a part within the field of architecture as a whole.

The key themes identified within Architecture Culture reveal that architectural design, as a discipline, has been evolving around its abstract and artistic core from the past to the present. However, mainly since the 1960s, Design Thinking and Knowledge Production by Architecture have defined quasi-scientific trajectories for disciplinary progression. The thematic structure of the trajectories in this study indicates a moderating role of Architecture Culture over other two trajectories, which implicitly emphasizes the significance of the subjective aspects in architectural design. This suggests that, the associated themes with Architecture Culture can potentially help create discipline-specific theories, methods, and knowledge more effectively than the other trajectories.

Furthermore, Architecture Culture aligns primarily with the discipline's formative phase, a period when architecture held significant societal influence. Reaffirming the value of subjective dimensions in architectural design could help address the current disciplinary crisis, which has seen architecture struggle to defend its intellectual and professional territories. This study identifies the growing dominance of highly objective approaches, which implicitly underscores the importance of revisiting the very nature of architectural design as a subjective, speculative, and intellectual area of knowledge in the future development of the discipline.

Additionally, integrating these subjective features with objective characteristics could enhance the architectural sense for future design projects. For example, it could streamline computerized architectural design processes by eliminating irrelevant phases such as random "form-finding". In academia, focusing on the Architecture Culture trajectory could inspire innovative research methodologies and theories, redefine the future horizons of the discipline, and empower architecture to integrate with other fields as guided by transdisciplinarity (Gibbons et al., 1994) to address complex global challenges.

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Transformation representations and creativity on the trail of invisible things

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Abstract
This study aims to concentrate on alternative forms of representation that open up creative moments through event narratives by problematizing the self-centered reductionist representations expressing the end product of the architectural design process. In this study, such representations are referred to as transformation representations. Transformation representations are appearances that reveal themselves at the intersection of reality and imagination and open the unconscious fields in the context of creativity. In the study, such representational states are handled as narrative forms in the state of becoming that concuss the potentials of being able to dissect the imaginary things in the hierarchical positions of the subject and object. The things that contain becomings in transformation representations emerge as event narratives. Within the scope of the study, encounters in such a state of revelation are discussed with the Deleuzian philosophy of becoming. In this context, creativity is interpreted as the subject's releasing the self into events that reveal encounters. The aforementioned states of representation are experienced in the online workshop entitled On the Trail of Invisible Things. In the workshop, which is intended to be intermediary to the participants for not encountering their own world, it has been observed that the displacement experiences that emerge with the subject-object melting and the inter-subjective-objective crossing can trigger creativity in synchronicity. The study is thought to be important for architects who are interested in discovering events in subject-object encounters and experiencing representational states of the unconscious to enrich alternative thinking and making practices in the design process.

Keywords
Architectural representation, Creativity, Event narratives, Transformation representations.

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1. Introduction

Creativity, whether defined as an "encounter" (May, 2013), an "event" (Direk, 2012), or a "mental process" (Yalçın Çelik & Aydınlı, 2007), is not a situation related to what is going on in the person. It includes a "process" that places the person and the world in mutually beneficial relationships (May, 2013). What must be seen in the relationality of processes in the world involving subjects and non-subjects, "what we have to recognize is that the interplay between the different lines isn't a matter of one monitoring or reflecting another… Nor is interplay an exchange: it all turns on giving or taking" (Deleuze, 1995). The grabbing events that occur during the interpenetrated encounters are transformed into the same and metamorphosed. Beyond the repetitive structures, drifts of the grabbing lead to unpredictable creative events that involve the unknown. This unknown is "an otherness in the same, that is, an alterity that we can gain access by questioning the history of being... The distinctive feature of the event is that there is something in it which both opens up to and resists experience" (Direk, 2012). The concept of creation resists the accepted and established values. Creative events do not approach the act of settling in the state of creation. "There you have a positive getting back: never what is known, but a great destruction of the known, for the creation of the unknown" (Deleuze, 2004). In this way, creativity triggers unfinished inquiries, open to possibilities, fed by contradictions, uncertainties, and coincidences when encountering the unknown.

Deleuze (2000) asserts that "thought is nothing without something that forces and does violence to it. More important than thought is what leads to thought". When the bodily experience as a thinking subject encounters the unexpected/unknown, the subject finds oneself in the field of events. Those events consist of unknowable acts, movements, interactions, and images that trigger the subject to think about the transition of one's being. "Every interaction has an impact (affect) on the body. With the image's violence, we are exposed to unsuspected emotions and become more open to becoming as a departure from who we are" (Uluğer, 2016). In this sense, creativity can be described as the subject's releasing the self into events that reveal encounters. "The act of encounter presupposes transformation not only of what is encountered but also of the encounterer" (Karadağ, 2014, p.21). Encounter leads to a becoming, that is, to the coming together of two things that do not become one another, but rather a third thing. This third thing specifically is what gives the work its existence (Karadağ, 2014). Similar to this idea, we conceptualize the concept of third space in this study as the creative events of becoming in architectural representation.

Drawing or representing in architecture should be more than just describing an object. Representation is a powerful tool that the architect employs to think, notice, comprehend, and make sense of things. In other words, drawing expresses a mental process that is unique to each architect, and it becomes a form of personal expression in response to our perception of an environment or a situation. According to Spiller (2013), "a drawing is a psychoanalytical tool." Dealing with four architects' approaches including himself (B. Cantley, N. Clear, N. Tanna and N.Spiller), he claims that they (four architects) "delve into the 'now', and that the 'now' is honed against the history of art and architecture through drawing. But, more importantly, it is the act of drawing that contributes to our understanding of our world, each different and beautiful" (Spiller, 2013).

Drawing as representation is a dreaming process. It is the practice of talking to oneself as a bodily activity (Tanrıverdi Çetin, 2020), a practice of doing. The process of transforming an objectified and frozen thought into a living, changeable, intellectually deep being is referred to as doing. Drawing, in this sense, is about action and serves as an integrative solder between thinking and doing. Each intersection of actions reveals a new relationship (Tanrıverdi Çetin, 2020). These relationships are what keep the drawing alive (Manolopoulou, 2005), constant-

ly updating it and transforming it into a being in the process of becoming. According to Manolopoulou, architects need tools to think with to imagine, understand relationships, construct and communicate with the arguments, to enrich design knowledge. They require inspiring tools to enhance design knowledge, rather than predetermined signs, as ambiguous signs that reinforce collaboration, doubt, and change. She addresses unformed or incomplete forms of drawings which are open to variable interpretations and lead to new architectural possibilities. As she states, besides of being considerably intuitive, changeable, and uncertain, these types of drawings are inventive rather than a representational device, a tool for critical enquiry, not for mere illustration (Manolopoulou, 2005).

In this study, which is based on the idea that drawing itself is a medium, the focus is on creativity in architectural representation. The study stems from the idea that creativity in architectural representation is realized on critical mediums that are abstracted, unfinished, ambiguous, fragmented, layered, and enriched by "differentiations in the state of becoming" (Mortaş, 2022), where the separation of subject and object dissolves, transforming each other as a "relational thing" (Asar, 2020). It implies that "spatiotemporal gaps" (Yetkin, 2023) in representations allow for such structuring in which the subject can continuously interpret by infiltrating them. This study uses the main concepts of becoming, event narratives, and subject-object relationships to discuss creativity within the theoretical framework of Deleuzian philosophy and utilizes this framework to dismantle the workshop representations. The event narratives that keep the instantaneous conversations between the subjects as designers and the object as designs relevant with unknowable mergers, where the things can dream together, are called into question here. They distinguish finished architectural representations that end in traditional forms in this manner. The aforementioned states of representation are experienced in the online workshop entitled On the Trail of Invisible Things. In this workshop, the encounter is structured on the theme of how it transforms into a kind of event narrative by being folded from dreaming to text, from text to encounter, and from encountering to representation. In another word, architectural representation is handled as the architect's encounter with the world of unknowables. By tracing the event narratives in the representations created within the scope of the study, it is attempted to reveal the concepts and tactics to experience the creativity of becomings.

Of course, such critical representations that serve as a foundation for architectural creativity are not new. From Leonardo da Vinci's drawings of the Ideal City in the 15th century, to the speculative drawing atmospheres of Piranesi in the 18th century, from the utopian fantastic landscape atmospheres of German Expressionists such as Bruno Taut and Hans Poelzig to the futuristic landscapes of Russian Constructivists such as Vladimir Tatlin, El Lissitzky or to heterogeneous representations of Dadaists such as Hannah Höch, Raoul Hausmann, László Moholy-Nagy, we can find inspiring examples to speculate and dream about the architectural space (Mortaş & Dursun Çebi, 2023). Additionally, innovative works after the Second World War can be added to this list including Guy Debord's psychogeographic mapping in *The Naked City* project, Constant Nieuwenhuys' *New Babylon*, Archigram's *The Plug-in City*, Walter Pichler's *Underground Building Campuses*, or Superstudio's *Supersurface*. The 1970s produced some notable works, including Peter Eisenman's *House III,* Bernard Tschumi's *Manhattan Transcripts*, Daniel Libeskind's *Fracturing and Displacement of Form* sets, and Peter Cook's *The City as Responsive Environment*, which present digitized narratives on time-spatial experiences. We could also discuss Rem Koolhaas' *Delirious New York* representations, Massimo Scolari's *Addio Melampo* drawing atmospheres, or Aldo Rossi's *Composition with Modena Cemetery*, which has a pluralistic representational atmosphere that is torn apart by its drawings (Mortaş & Dursun Çebi, 2023). Following this period, Zaha Hadid's early works, realized under the influence of

suprematism, Nigel Coates's work on *Gamma Tokyo* in which he defends his neo-situationist vision of the city, Neil Denari's *The Artless Drawing* in which he explores theoretical machine spatialities, Lebbeus Woods' *Inhabiting the Quake*, *The Quake City* work and Marcos Novak's *Liquid Architecture* work on fluid architecture are worth discussing. In the 21st century, designers such as Neil Spiller, Perry Kulper, Nat Chard, Ryota Matsumoto, Nic Clear, Bryan Cantley, Dan Slavinsky, Markus Pasing, Luke Caspar Pearson can be mentioned for their speculative representation environments and creations. With an awareness of such approaches and current discussions, the purpose of this study is to theoretically ground the desired state of representation as transformation representations and investigate the viability of incorporating it into the design process and/or architecture education as a critical creative attitude or a design method (Şentürer, 2022). The study suggests that architects require tools to interact with concepts, imagine, comprehend relationships, collaborate, and conceptualize invisible aspects of space to develop their design knowledge during the design process. The authors believe the research is valuable because it demonstrates/discusses the design thinking habits that support/exemplify this process. Because the authors are also architectural design studio coordinators, they are interested in questioning and researching such forms of representation primarily in an educational context.

2. Creative event narratives as transformation representations

Architectural representations used in today's architectural environment bring along the need to reproduce architectural knowledge that is intended for the issues of subjectivity, subjectivation and objectivity. These reproduction situations, on the other hand, provide the opportunity to interpret and transform the architectural representation. Transformation, together with the concepts such as experience, meaning, feeling, perception and atmosphere that constitute the content of design studies, is the quality of the event that opens the subject itself to becoming-object and the object itself to becoming-subject, grabbing from each other's essences and unpredictable hybridizations. In order to convey this situation clearly, it may make sense to expand upon an inference made by Martin (2010) for Žižek's reflexion on Deleuzian philosophy. "Žižek conjures the particularly poignant image of 'a yuppie reading Deleuze,' through which he provocatively claims certain affinities between the apparatus of desire exemplified by advertising and affect-producing Deleuzian desiring machines" (Martin, 2010). In their work Anti-Oedipus, Deleuze and Guattari want to think the relationality of desire and the desired object as another machine inside the machine. For this thought, if the desire in the unconscious is a machine, the desired object is another machine within that machine. The desired object is the autonomous machine of the main desiring machine, capable of forming new assemblages with previously unknowns. "Through the sequences of desires with each other, the machinic connections of the social factory are constructed and new subjectivities can be produced. In a sense, there is the production of subjectivity with the transversal nature of desire as a flow produced in the relations between heterogeneous series" (Özcan & Güneş, 2021). For this understanding, desiring machines exist before the oppositions of subject-object, representation-production. In this sense, when Žižek's 'Deleuze-reading yuppie' is considered as a machinizing human-object, Deleuze's desiring machines may be calling for a new possibility of architectural becoming-representation in a humanized machine-subject hybridization. According to Deleuze, in the name of creativity at the time of the event, experiences that pass into becoming are "in search of the source of all differences and possible other-becomings, of production like a kind of factory, in an effort to integrate with the flows in the depths of the body" (Uzunlar, 2017).

In Deleuzian philosophy, the event takes place in infinite time that does

not exhaust itself in the present and is the realization of a cross-section cut out from the plane of immanence, namely becoming (Uluğer, 2016). In Deleuze, the subject, which comes into becoming by opening to creativity, escapes from its own immanence through itself. This is referred to as the immanent escape dynamism (Ichida & Zourabichvili, 2016). "When substantives and adjectives begin to dissolve, when the names of pause and rest are carried away by the verbs of pure becoming and slide into the language of events, all identity disappears from the self, the world, and God" (Deleuze, 1990). In this sense, essences from immanence also escape from their conscious immanent logic so that they can undergo the creation of the becoming in the event. "Beyond designated objects, beyond intelligible and formulated truths, but also beyond subjective chains of association and resurrections by resemblance or contiguity, are the essences that are alogical and supralogical. They transcend the states of subjectivity no less than the properties of the object" (Deleuze, 2000) for creating concepts by passing into the becoming of the event. Thus, in Deleuzian philosophy, the grabbing events can move on to exhibit creative becomings that transform the liminal space during the subjective-objective encounters into the third thing by leaving the subject's actions, self, consciousness and logic.

According to Deleuze, the event does not reside at the beginning, it does not wait at the end. The event occurs somewhere in between, in the middle of dualistic oppositions such as subject-object, beginning-end. In Deleuze, "the event always takes place in a rhizomatic field starting from the middle" (Uluğer, 2016). Similar to this thought, architectural transformation representations are the becomings of events that the subject leaves its subjective consciousness by escaping from its previously determined consciousness while establishing the space. This type of liberated consciousness let itself open to interobjectivity. Subject's consciousness that is ready to transform itself as an object, starts to translate the events by witnessing all the things as a thing among all things. This condition causes the newly objectified subject to grab its existence with other objects without any kind of domination. In this sense, in the transformation representations, the astonishment of witnessing is experienced instead of the knowledge of domination, by moving from static acts of knowing to dynamic acts of understanding and revealing. The subject itself does not establish a space, by including itself in the process of becoming in the atmosphere, it reveals the creative representation of this transformation as both a witness, a component and a prosthesis of creative events.

In transformation representations, the linear flow of historicism is interrupted, the subject's becoming-object and the object's becoming-subject pass into creation by revealing the grabbings in simultaneity. "The transformation occurs not to the historical, stratified and archaeological composition but to the composing forces, when the latter enter into a relation with other forces which have come from outside. Emergence, change and mutation affect composing forces, not composed forms" (Deleuze, 1988). Becoming at this moment of event "opens up a field of potentials, creating unpredictable life possibilities that cannot be reduced to historical conditions" (Yücefer, 2016). The subject in transformation representations passivates the historicist management of its consciousness in order to be active. Lines of encounters or "drawing lines of confrontation is to surrender to the moments when transmission is disrupted. To surrender is an active act to choose passivity. A precarious pause that gives up resistance to drawing's role to confound and question as opposed to resolve" (Hamel, 2007). Being scattered into the possibilities of becoming in the event calls affirmative situations with an ahistorical empathy that the subject establishes with the object. The fact that the subject does not reconcile with its established logic opens an uncanny and ambiguous space, enabling the discussion of creative states in architectural representation. Subject's ahistorical and nonlinear empathy with the object is "further a matter of accepting spatiality. The relation of

the self to the other, what Bachelard calls 'transsubjectivity', happens in that in-between space where boundaries get fuzzy, where …, 'inside and outside are not abandoned to their geometrical opposition. The fear of living without a 'geometrical homeland', in 'ambiguous space' of no clear distinction between inside and outside, refers to a certain misrecognition of the spatial contingency of life" (Nigianni, 2007), refers to the creativity in the becoming-grab events of third-space.

This study discusses transformation representations as a creative ground that initiates an ongoing dialogue between the designer and the designed thing. Using Deleuzian philosophy, it is conceptualized as the following three features: Being in the process of becoming, triggering events through new encounters (event-narrative), dissolving subject-object relationships, and creating mediums that produce and transform one another (subject-object relationship).

We can express the event flow in the workshop On the Trail of Invisible Things through Deleuzian desiring machines. In that case, the text is a machine in the event of transferring the daydreams that the subject cannot manage and that are invisible into the text. On the other hand, the desire of another subject who encounters this text to translate the unconscious events in the text for transformation representations begins to indicate assemblage as another machine that enters this machine.

In this workshop, written texts are used as tools (objects) to call into question the participants' imaginary narratives, stripped of their subjective consciousness and what they already know. Then, the narratives are exchanged, and finally, as another subject, each participant is expected to translate the events in the text one encounters into the atmosphere of representation.

3. Workshop: On the trail of invisible things

The subject-object encounter occurs when the subject nears the object, and the object nears the subject. In this situation of nearing and contact, the frames attributed to the subject and object begin to dissolve (Asar, 2020), and becoming-representation as a third spatiality emerges. The third reveals the creative transformation representation by opening an ambiguous space with event narratives that mediate the unpredictable hybridization of subject and object. Transformation representations as creative event narratives allow us to discover events in subject-object encounters and to experience the representations of the unconscious mind. In this context, a workshop titled On the Trail of Invisible Things focused on event narratives was held to investigate how the displacement experiences associated with the subject-object melting and the transition between the subject-objects stimulate creativity in architectural representation. Attendants experienced their unmanageable daydreamings, and they tried to read the invisible traces through the event narratives revealed by the subject-object encounters.

The workshop was designed as part of a daily academic event on 3 February 2021 via Zoom, consisting of a series of presentations, simultaneous workshops[1], and a digital exhibition/evaluation. It was organized as part of the authors' research project entitled "Reflections of Narrative Architecture in Transformation Representations on the Architectural Design Studio." The research project aims to strengthen architectural design studios in the context of theoretical and methodological approach alternatives by discussing architectural representations under the main title transformation and deciphering these narratives in terms of design and production paradigms (Dursun Çebi et al., 2021a).

Within the scope of this event, simultaneous workshops were held to discuss contemporary and innovative design findings. The authors designed and coordinated one concurrent workshop series, On the Trail of Invisible Things (Figure 1), which included eight university students. The participants included five architecture undergraduates, one industrial design undergraduate, and two architecture graduate students. The workshop and event were conducted in Turkish, but the process was bilingual due to an international student present.

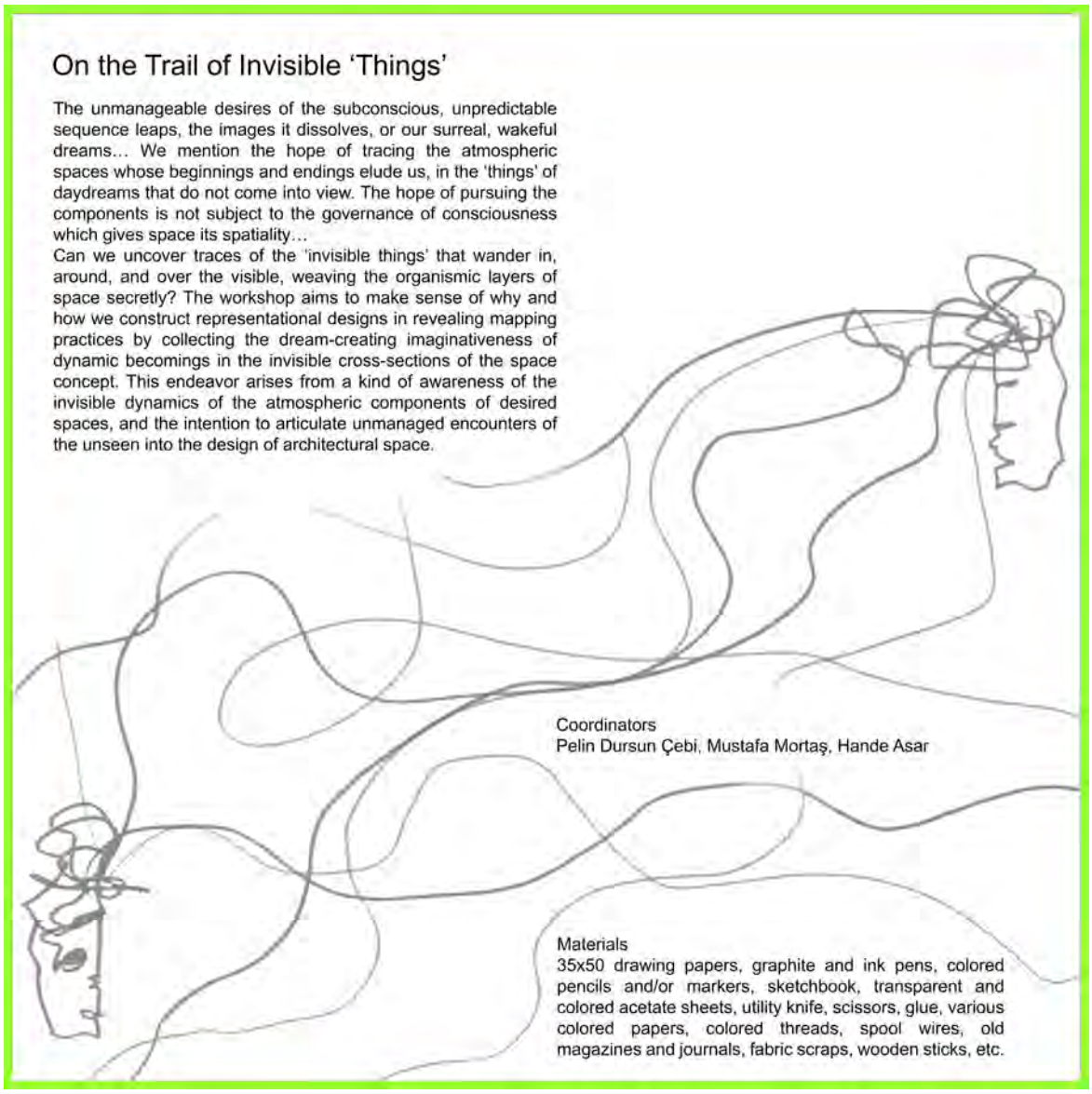

Figure 1. *On the Trail of Invisible Things workshop poster (Dursun Çebi et.al, 2021b).*

The workshop, which was designed to trace the creative counterparts of the concepts of event narrative and event-becoming in architectural representation, pursued the question of the "unseen by the eye, hovering in/around/over the image and secretly weaving the organismic layers of space, can we detect traces of things that do not fall into the image?" The workshop tried to make sense of why and how we construct the representations to reveal the event narratives by collecting the dream-creating imaginations of the dynamic becomings in the invisible cross-sections of the concept of space. This effort arises from awareness of the invisible dynamics of the desired space's atmospheric components and their intention to articulate the unmanaged encounters of the unseen in architectural space design.

The unmanageable desires of the unconscious, the unpredictable sequence jumps, and the images it melts are directed toward our surreal and waking dreams. For this reason, the invisible thing(s) in the workshop were searched by following the traces of daydreams through the dream-creative imaginativeness of dynamic becomings. In the invisible things of daydreams, in order to be able to trace the atmospheric spaces whose beginning and end we do not know, components that are not subject to the governmentality of consciousness that make space a space and attribute its spatiality to it were sought. In this context, in the first stage of the workshop, participants were expected

to perform a five-minute daydream experience by listening to their unconscious encounters at that moment. Participants closed their eyes and listened to the developing narratives in their unconscious journeys. Following this experience, participants composed a daydream text of 100-150 words in their native language. The texts were distributed to the participants using a random distribution method (Figure 2). As a result, each participant tended to design the spatial atmospheric representation of the text that was discovered by chance by encountering another participant's daydream text, rather than its own text. At the end of the workshop, the authors evaluated each participant's revealed texts and designed representations collaboratively, and the event narratives they revealed were discussed.

In this sense, our study during the workshop will reveal the transformation representations with a fiction that has phases of unexpected and unknowable encounters. Firstly, the subject records the unconscious daydream imagery as a text that the one cannot manage. This subjective experience becomes a text narrative as an object. Then, another subject encountering this text begins to abandon one's subjective consciousness while translating the events. The translating of another subject changes its medium by passing through the atmosphere of representation as a third spatiality to record the drawing of events.

When we evaluate the students' works, Student D constructs a representation (Figure 3) through an abstract spatial experience by considering the concepts of "protection, fluidity, spatial shell, sound-space, darkness in space-place duality, incarceration and unfolding" in the text one reads. The constant crashing of waters and sounds into a certain inner shell in the text are, in a sense, interventions that call out Student A's unconscious shelter. With the fluid compositions of Student D's non-linear lines, the element of water transmits sound waves to the becoming as the dashed lines produce an effect by emitting frequencies. As Student A's efforts to break its inner shell through water and sound waves intensify, we can read the dynamic drifts in the narrative as solid traces of starting to represent the adventure of liberation with the undulating lines on the outermost periphery. As the strange colors on Student A's hands come out of the shell, Student D's meeting with water and sound waves is revealed as a linear narrative. When the boundaries between the spatiality inside the shell and the spatial atmospheric nature of coming out of the unconscious begin to dissolve, Student A's comparison of the uncanny between inside and outside evolves into Student D's holistic representation in the narrative landscape. In this way, the concepts of fluidity, incarceration, and unfolding that Student A uses in one's text open up to becoming in the footsteps of Student D's lines and construct the event narrative by transforming it into sound space.

Student E creates a representation (Figure 4) by folding and unfolding the unconscious despair and hopes in Student B's text. The act of waiting at a metaphorical bus stop, which appears at the beginning of the text, attempts to visualize the moment of waiting at the top of the representation and opens it

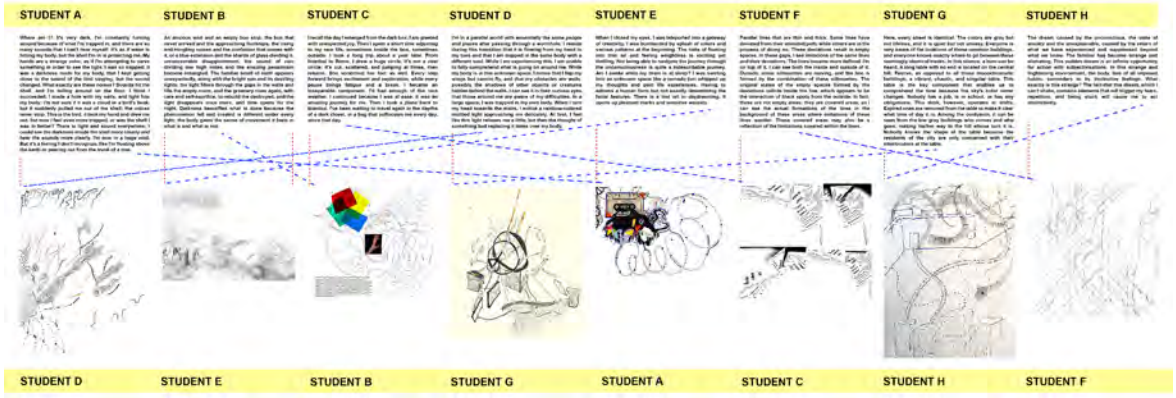

Figure 2. *Diagram of the texts' distribution and text-representation matching.*

Where am I? It's very dark, I'm constantly turning around because of what I'm trapped in, and there are so many sounds that I can't hear myself; it's as if water is hitting my body, but the shell I'm in is protecting me. My hands are a strange color, as if I'm attempting to carve something in order to see the light. I was so trapped, it was a darkness made for my body, that I kept getting close to the sound of the bird singing, but the sound changed. What exactly are these noises? Sounds hit the shell, and I'm rolling around on the floor. I think I succeeded; I made a hole with my nails, and light hits my body; I'm not sure if it was a cloud or a bird's beak, but it suddenly pulled me out of the shell; the voices never stop. This is the bird, it took my hand and drew me out, but now I feel even more trapped, or was the shell I was in better? There is light and sound everywhere; I could see the darkness inside the shell more clearly and hear the sounds more clearly. I'm now in a huge void. But it's a feeling I don't recognize, like I'm floating above the earth or peering out from the trunk of a tree.

Figure 3. *The representation designed by Student D (2021) for the text of Student A.*

up to becoming. Student B's footsteps blurring in confusion, the vulnerable confusion of other environmental sounds, disappointments, and the entangled narrative of all the confusion of rain mediate the unveiling of Student E's parametric linearities. Differentiating these linearities by influencing each other transforms the dynamism between dark and light- becoming an event narrative. Besides, the dividing glass particles that appear suddenly in Student B's text can be detected in the overlapping stratification narrative of geometric refractions revealed in the lower left part of the representation. The sunlight in the hybridization of the smell of earth suddenly born to a metaphorical bus stop wait brings hope to Student B's text, and this kind of excitement may be giving birth to the shimmering iridescent drawings Student E observes in the unconscious encounters in the midfield. However, a spatial atmospheric becoming for night and darkness calls for representation to hope for hope again, and the chaotic waiting of parametric linearities pushes the representation to another wait in the lower right part for the night to pass. Student E's narrative, constructed through the line, establishes a dynamic event narrative that opens up a different spatial formation each time in the waiting cycle.

Student B's representation (Figure 5) tries to construct a narrative that is liberated on the journey of Student C and feels trapped again when one comes to one's own urban space. The narrative in Student C's attempt to keep up with the encounters by coming out of a dark box that one unconsciously built for oneself can be observed in the context of the photomontage representation reaching out through the black rectangle to explore the non-linear lines around it. The journeys of lines with different values that spread and multiply around make sense of Student C's many experiences in its travels to Europe. The excitement and discovery of going abroad from a dark box opens from experiential layers to becoming through the overlaps on Student B's colored acetate papers and mediates the discovery of new meanings. We can read the narrative, which can be evaluated in the context of returning to the dark box where Student C started, through Student B's circular lines. The insights that are thought-provoking in this representation can be considered as the collision of Student C's experience of being on a journey with colored acetate papers by Student B and the individual›s return to one's unconscious being represented by the traditional central point understanding in the emerging transformation of the representation. The experiential layers and discoveries represented by colorful transparencies, lines of different characters, and their meeting with each other reveal an event narrative that both opens out and turns into oneself.

The 'wormhole' Student G encounters in the text she analyzes can be observed through the meeting of dark black circular surfaces in encounters with the outside world, in an atmosphere through which Student D finds self-managing a chaotic world order. The organic planar representations skidding around the last black circle that grows outward are perceived as surrendering the same confinement flowing from Student D's head to one's toes to the hierarchies of other rectangular forms. It can be considered as Student G's attempt to return the adventure of being confined to the same body in Student D's text to a Cartesian orderliness. Observing what happened in Student D's unconscious by those around one may be turning into a narrative through the yellow stripes scattered around in the representation. The redeeming lights appearing on Student D's metaphorical stairs are revealed in the lower right part of Student G's representation (Figure 6) and open up to become a kind of liminal nausea. Although it is stated that such linearities create a dissolution in this part of the representation, the pessimistic flow of the unknown in the text is perceived as directing the narrative to other unconscious fears. The fact that Student D is physically and mentally trapped in one's parallel universe turns into an event narrative that melts into the order that Student G establishes and disrupts through different geometries, lines, colors, and cycles.

Student A's representation (Figure 7) is interpreted as an attempt to deconstruct Student E's adventure of 'creativity,' which is frequently emphasized in one's text, by placing it in the brain of a tape. When the tape shares its creative music with spatial atmospheric-becoming and other experiences, it appears to be composing various encounters. The spatial intentions of each unconscious experience can be observed in the collage of another color in Student A's design as if attaching the creative undefinedness to the atmosphere by attaching oneself to the cassette tape drifts from the blackish space. The whirlwind that is becoming in Student E's text is perceived as being represented by the spiral dispersions of the cassette tapes blowing outward. This representation is like an attempt to bring Student E's lost art in one's daydreams to light by Student A's, to open it up to becoming. Nevertheless, Student E's subliminal adventure cannot get rid of the acts of 'sensitive

Figure 4. *The representation designed by Student E (2021) for the text of Student B.*

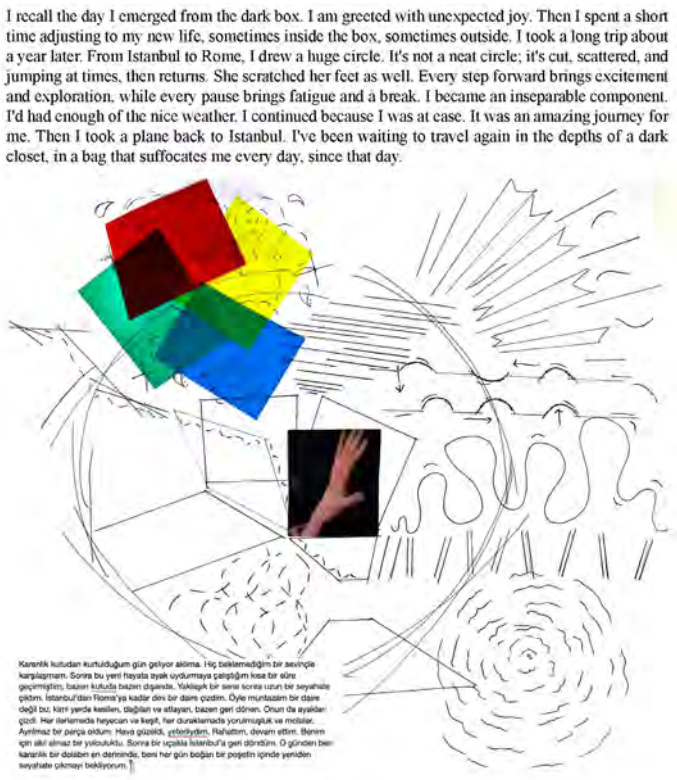

Figure 5. *The representation designed by Student B (2021) for the text of Student C.*

I'm in a parallel world with essentially the same people and places after passing through a wormhole. I realize during this transition that it is flowing from my head to my toes and that I am trapped in the same body with a different soul. While I am experiencing this, I am unable to fully comprehend what is going on around me. While my body is in this unknown space, I notice that I flap my wings but cannot fly, and that my obstacles are walls, possibly the shadows of other objects or creatures hidden behind the walls. I can see it in their curious eyes that those around me are aware of my difficulties. In a large space, I was trapped in my own body. When I turn my head towards the stairs, I notice a rainbow-colored mottled light approaching me delicately. At first, I feel like this light relieves me a little, but then the thought of something bad replacing it takes over my body.

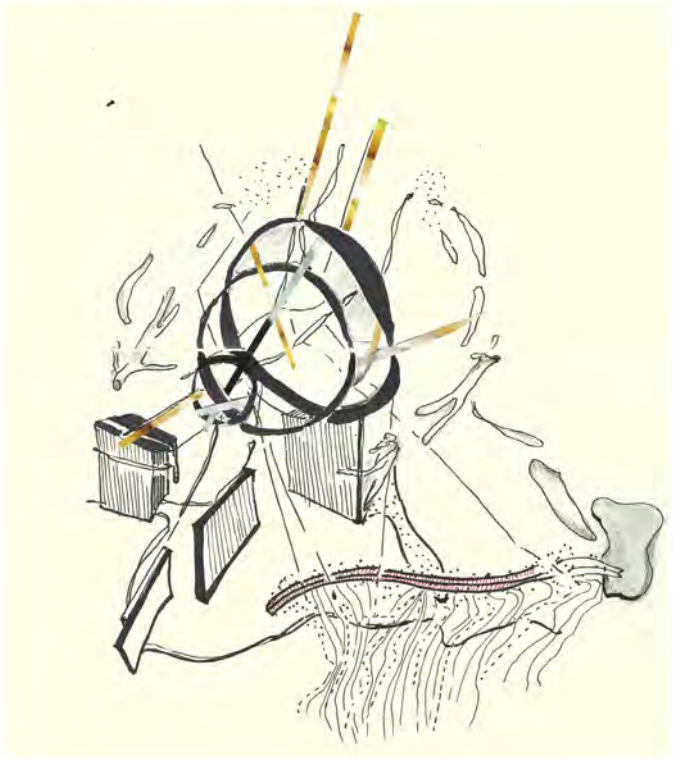

Figure 6. *The representation designed by Student G (2021) for the text of Student D.*

When I closed my eyes, I was teleported into a gateway of creativity. I was bombarded by splash of colors and various patterns at the beginning. The state of floating into thin air and feeling weightless is exciting yet thrilling. Not being able to navigate the journey through the unconsciousness is quite a indescribable journey. Am I awake while my brain is at sleep? I was swirling into an unknown space like a tornado just whipped up my thoughts and past life experiences. Having to witness a human form but not exactly determining the facial features. There is a lost art in daydreaming. It opens up pleasant marks and sensitive wounds.

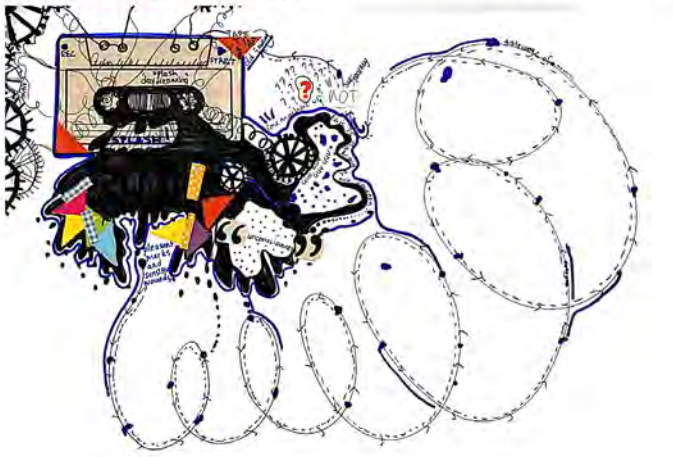

Figure 7. *The representation designed by Student A (2021) for the text of Student E.*

wounds', and in Student A's representation, all these wound particles turn into a narrative that can be observed with organic stains around the spiral cassette tapes. In representation, the fact that creativity is handled by comparing a Deleuzian abstract machine concept with the unconscious-cassette mechanism can be perceived as emphasizing the subject-object interface. The cassette image and overflowing/ flowing colors reveal the event narrative of the lost art in daydreams, with whirlwinds that consist of spiral bands and stains and creative atmospheric clinging.

We can perceive Student C's representation (Figure 8) as a visualized theoretical letter against Student F's speculative text. Student F goes above the lines in one's text; one dreams of a silhouette deviation in the lines, gaining dimension by darkening the empty spaces. In this area, Student C's event narrative responds to an inherent escape dimensioning with background tears that darken through textual distortions. According to Student C, texts may also visualize the deviations of thin and thick parallel lines in the narrative setup she is testing. The foreground and background ambiguities in the representation and the deconstructing of the covered areas through texts can be read as becoming among the different montage operations. We can also observe the 'actual formations of the lines lying in the background of the imitations' navigation in Student F's text through the gaps that set up the storyboard. On the other hand, the emptied areas created by the deviations can be thought of as being revealed in the shading effects of the paper tears observed as if they were rising from two to two and a half dimensions. The fact that parallel lines, as hidden players in the text, can only be felt through plan framing may lead to the discussion that the main issue is represented in the deviations in text lineaments. On the other hand, lineaments opening up to becoming through words establish an event narrative as textual distortion, both with the lines it creates and the meaningful/meaningless associations or deviations of the words.

In Student H's representation (Figure 9), the 'table metaphor that brings together every neighborhood resident around a common abstract table' in Student G's text can be grasped with

the elevation oblique drawing at the top of the representation. Neighborhood residents seem to visit through their linear dynamism to the oblique view representation of the table, conceived in the dream of a long table. Although the 'every street being the same' in the text cannot be read clearly in the imaginative representation area, the similarities between the streets can be observed as the rectangular blocks of the regular city at the bottom of the representation. The fact that the locals included in the table do not have any work can be explained by the differing dynamism of the linear participation in the upper part of the representation. The diversity of the participants visits the top part of the representation with different colors and line intervals that change continuity. Where residents sit and leave is governed by rotations of lineaments; in this unconscious daydream, every dynamic intentionality follows the harmony of a specific rotation. However, the traffic of the lines visiting the table demonstrates as if they can reflect the neighborhood's festivity in the drawing's atmosphere. The reading of the table with an oblique view, the city with rectangular blocks, and the neighborhood with alternating intermittent lines and the rotations of those linearities reveals the atmosphere created by the drawing as an event narrative.

Student F's representation (Figure 10) seems to try to make sense of Student H's suppressed instinctive adventure in one's unconscious daydreaming. A repressed representation seems to appear in the main axonometric construction of the work, with the notion of applying pressure with the determined geometrization of a rectangular world. This appearance begins to constitute the interlinear interaction thresholds where Cartesian rectangular volumetrics are boundless and the boundaries are increasingly blurred through linear contaminations. The voyages of discovery of dashed lines can be observed in this narrative as a rebellion against all the usual scenarios predicted by the system and imposed on individuals. It is as if the individual's unconscious surrender to instinctive emotions can be detected in the chaotic encounters

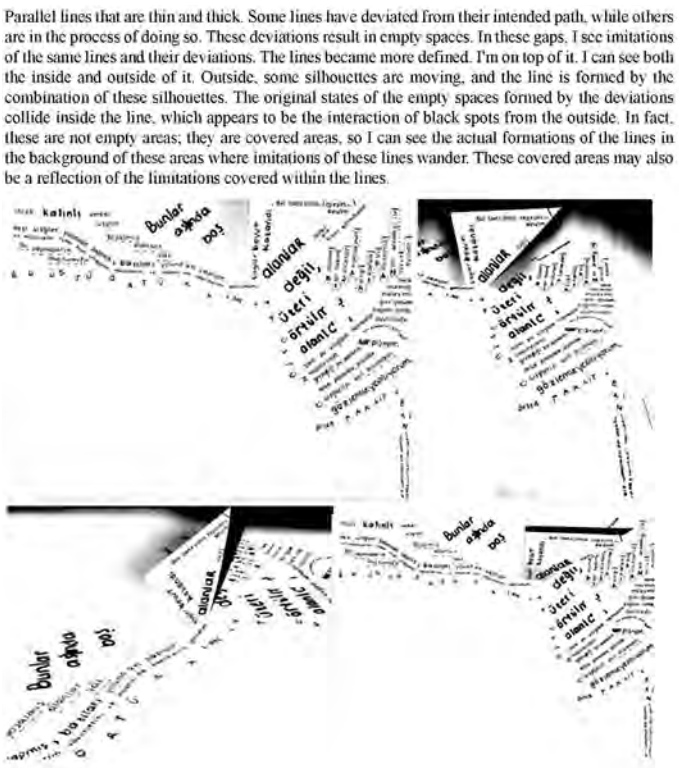

Figure 8. *The representation designed by Student C (2021) for the text of Student F.*

of intertwined broken lines. The loss of a significant axonometric orderliness is perceived as being dissolved in the desires of unconscious intentionality. The nomadic sloppy drawing dynamisms designed by Student F, attempting to destabilize the vertical and diagonal lines, form a methodological image, an event narrative for Student H's instinctive unconscious escapes in one's repetitive compression.

When we consider all the works together, we can see some similarities and differences in the context of the tools used and how they are used. Student D employs the power of linearity in this context to instrumentalize the fluid and continuous/discontinuous lines and constructs the event narrative by transforming it into sound space. Student E uses the entwining, overlapping, and transforming lines and images to turn the dynamism between dark and light-becoming into an event narrative. On the other hand, the narratives of Students B and A have differed from other event narratives due to the effect created by the use of color. Student B has created the event narrative in this context through collage and hybrid drawings by layering colored transpar-

Here, every street is identical. The colors are gray but not lifeless, and it is quiet but not uneasy. Everyone is very aware of the locations of those common buildings, and everyone knows exactly where to go between these seemingly identical tracks. In this silence, a hum can be heard. A long table with no end is located on the central hill. Festive, as opposed to all those monochromatic buildings, a vibrant, chaotic, and singular table. This table is the key component that enables us to comprehend the time because the sky's color never changes. Nobody has a job, is in school, or has any obligations. This desk, however, operates in shifts. Expired ones are removed from the table to make it clear what time of day it is. Among the confusion, it can be seen from the low gray buildings who comes and who goes, making his/her way to the hill whose turn it is. Nobody knows the shape of the table because the residents of the city are only concerned with their interlocutors at the table.

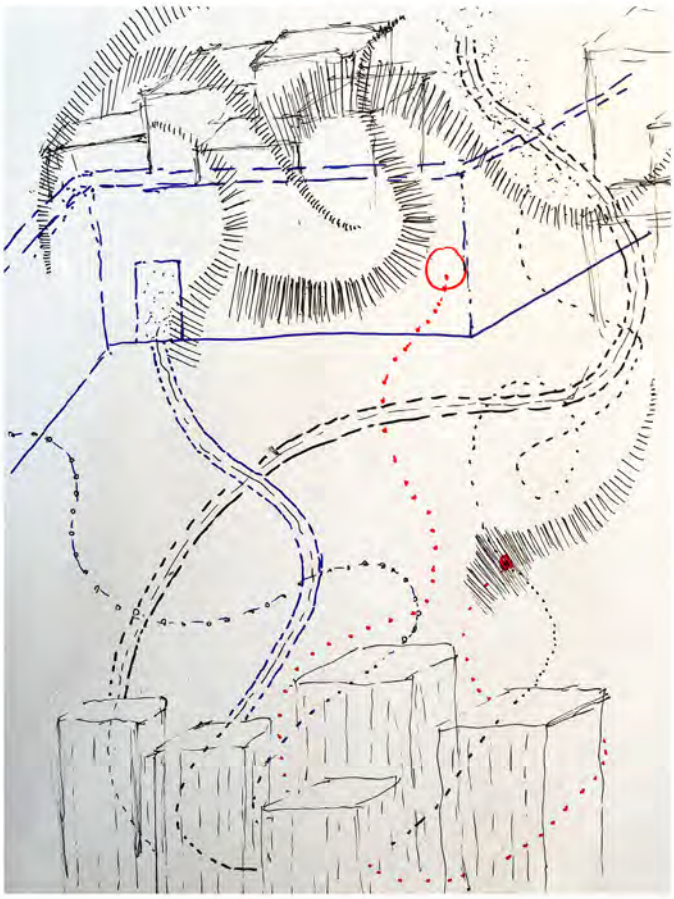

***Figure 9**. The representation designed by Student H (2021) for the text of Student G.*

encies and lines of various characters. Student A created the event narrative through a collage with images and the power of color. Student G, the designer of another image-focused representation, has turned the abstract images that melt into the order she has established and disrupted through different geometries, lines, colors, and cycles into an event narrative. Students H and F, who focused on representation through lines again, exhibited a similar approach in this context. While Student H's narrative of using the rotations of the lineaments presents the atmosphere created by the linearities as an event narrative, Student F's event narrative, created through stray, ambiguous, and ambiguous lines, appears as a methodological image of instinctive unconscious escapes. Finally, Student C's narrative differs from all other studies because of one's strategy. Student C has constructed an event narrative as a textual distortion using the linearity of the words and meaningful/meaningless associations or deviations with the collage+montage tactic.

Finally, we can assess all event narratives as creative examples in the context of a text-drawing interaction. If the workshop was not online, the interaction between the materials (such as old magazines, threads, and bobbins) and the participants could have been more extensive. On the other hand, although the variability of student profiles participating in the workshop differed, the final products were similar. However, these findings may differ in a more extensive study with more participants.

4. Conclusion

This study focuses on transformation representations, a highly personal, ambiguous, lively, unfinished, layered, and creative form of expressions in which the distinction between subject as designer and object as designed dissolves, focusing on narratives in the form of becoming, where the previously known is not reductively transferred, not for construction, but where the unknown is explored through new encounters. This type of representation is considered a transition from a traditionally closed and reduced generic representation environment to a dreamlike, open-ended representation. Here, creativity is thought to be triggered by "a mechanism that assists the possibility of seeing something new emerging within the unknown and the indeterminate" (Manolopoulou, 2005).

The workshop experience consists of dissipations, expansions, folds, twists, and/or swings between/around/along with invoking speculative representation operations of invoking change and transformation, activating unexpected and unknowable fluctuations in the conformist and risk-free safe streamlines of traditional architectural representation. Various findings are encountered during workshop methods, tools, and workshop environments that tend to be problematized with an intention in this understanding, such as creative

openings for representation practices in architectural design studios, acquisitions of difference, and inclusions that blunt creativity.

The idea of not being given in the architectural design process, as expressed in the On the Trail of Invisible Things Workshop, can reveal transformative critical creativity for the representational atmospheres of design studios. The information, places, data, concepts, and spaces envisaged in the execution setups of traditional architectural design studios may be repeated every time the student begins to settle in the predictable environment of the work given from the start, and this habit clings to the conformist and safe education base in the traditional architectural design studio. A design practice that clings to the subjective consciousness of predicted knowledge may be closed at the conventionalization of exhibiting the act of constructing static representational narratives around the control of consciousness, which has begun to dominate by its knowing. However, dreams in the uncontrollable blurring of the unconscious may open up the possibility of exploring previously unseen creative atmospheres of design practice on slippery floors by dynamizing desires and confessions that were not given or fictionalized beforehand. On the Trail of Invisible Things Workshop, the absence of unconscious fantasies that are invisible to the eye can open up the possibilities of 'displacement and crossover,' in the sense of suggesting a method of transformation by disrupting the knowing and judging predictive habits of the student who comes to the architectural design studio with the traditional subject setup. The inclusions of the individual and conscious project design act of the student subjects in the architectural design studio are opened to creative becoming again with the transformation of the 'subliminal daydreams text of a participant' experienced in the workshop in question into the representation of another participant with a random drift. The traditional representation tendencies of design practice, which a conscious, individual, and self-centered architecture student is accustomed to anticipating in the subject-object separation, may draw attention to the potential of articulating the creativeness that will emerge from the experimentation of intersubjective drifting, along with the subject-object dissolution of the unconscious, into architectural studios in the context of a new type of architectural desirability. According to this interpretation, the approach that is becoming innovative for the architectural design studio can be perceived as subject-object dissolution and intersubjective cross-replacement experiences being experimented for creativity in a concurrent temporality.

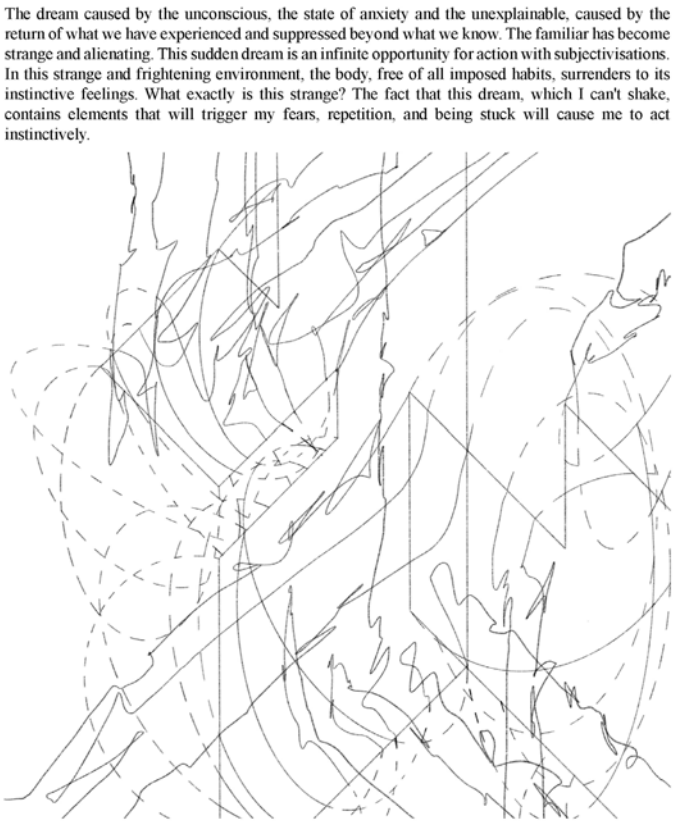

Figure 10. *The representation designed by Student F (2021) for the text of Student H.*

Endnotes

[1] The 'Designing the Representation' event on February 3, 2021- within the scope of the BAP project entitled "Reflections of Narrative Architecture in Transformation Representations on the Architectural Design Studio," which was completed by the authors- started with speeches and continued with workshops.

Acknowledgement
This study was written within the scope of the İTÜ BAP project, entitled "Reflections of 'Narrative Architecture' in Transformation Representations on the Architectural Design Studio," which was completed by the authors (Project ID: 41686 and Project Code: MGA-2018-41686). We thank Beyza Birkan, Dana Hussein, Deniz Kantar, Ezgi Kaya, İrem Metin, Nilsu Altunok, Pelin Kayhan, and Zeynep Şahin for their contributions and participation in the utilized workshop case in this research.

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Revisiting the role of listening in online architectural design studio pedagogy

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Abstract
Online education during Covid-19 left most architectural design studios with two sensory realms: the visual and the auditory. Although the initial reaction focused on sharing and collaborating on the visual material, it was the auditory affordances of the remote design studio environment which designerly operations and communications relied on, and were even characterized by. Considering the significant change in the role of sound for the design studio, and the evolution of the notion of listening in the 21st century, the capacities of sound and listening in understanding, reimagining and space-making for architectural learning, as well as organizing the studio experience in virtual and physical environments remains understudied. This paper aims to launch a discussion on the role and potentials of listening in the evolving practices of remote architectural education, feeding from 21st century listening theories and practices. A threefold inquiry is performed: revisiting the role of sound in architectural education, reviewing contemporary discourses on listening, and discussing the pedagogical affordances of the new auditory environments in remote architectural education through the project series "Spaces of Sounds", designed specifically to tackle with the altered relationship with space, sounds and architectural communications in the first-year online design studio. Borrowing from theorists, artists and scholars' discourses on listening, the discussion will be reflected on the new methodologies and critical approaches in design studio pedagogy to make use of the capacities of new auditory experiences. Finally, the emancipatory potentials of listening will be discussed for architectural learning in the new generation architectural learning environments.

Keywords
Audio-spatial awareness, First-year architectural design studio, Listening, Online architectural education, Sound.

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1. Introduction

When the physical design studio environments were abolished and transferred onto online platforms due to Covid-19, our communications were essentially reduced to the two sensory realms that online media and devices enabled: the visual and the auditory. Most of the academic discussions in this process were directed towards the affordances of online platforms in sharing and collaborating on visual material.[1] Yet, as much as the visual, it was the auditory affordances of the remote design studio environment which designerly communications and operations relied on, and were characterized by.

The transition to online education was a significant moment for the role of sound in design learning and organizing the design studio environment. To maintain a sense of design studio in online platforms, the medium of sound was charged with additional roles. In the absence of bodily and tactile senses, sound became the organizing medium that bridged the physically and socially distant individuals, spaces and geographies. It facilitated the exchange of content for architectural education: imagined, intended, constructed or represented spatial ideas, forms, concepts, intentions and the discussions through them. Even verbal communication, which has long been accepted as a significant component of the architectural design studio (Wendler & Rogers, 1995), was reshaped according to the affordances of the intermediary devices; speakers, computers, sound algorithms and protocols of online communication platforms.

The situation posed additional challenges for the first-year design studios executed entirely online. Sound and listening took on a perplexing role in introducing students for the first time to the notions of architectural thinking, concepts, language, tools as well as the studio's culture, workings, and to each other, in an unfamiliar online environment. Yet some first-year design studios, including the one presented in this article, used sound and listening beyond the conventional means of verbal communication, to explore its novel and undiscovered potentials for online architectural learning.

Hence, considering the significant change in the role of sound for the design studio, and the evolution of the notion of listening in the 21st century, the capacities of sound and listening in understanding, reimagining and space-making for architectural learning, as well as organizing the studio experience in virtual and physical environments remains understudied.

This paper aims to launch a discussion on the role and potentials of listening as a tool in the evolving practices of remote architectural education, feeding from 21st century listening theories and practices. It does so by carrying out a threefold inquiry: revisiting the role of sound in architectural education, reviewing contemporary discourses on listening, and discussing the pedagogical affordances of the new auditory environments in remote architectural education through the project series "Spaces of Sounds". Borrowing from contemporary discourses on listening, the discussion will be reflected on the new methodologies and critical approaches in design studio pedagogy where the capacities of new auditory experiences are experimented. Finally, the emancipatory potentials of listening will be discussed for architectural learning in its new generation environments.

2. Sound in architectural education

Although architectural discipline and culture is primarily built on the capacities of visual communication, sound is a foundational medium that has long been integral to architectural learning in manifold ways.

Sound is inextricably engrained in architectural education, due to space and sound being phenomenologically and ontologically intertwined (Eisenberg, 2015) and architectural learning relying on multisensory communication and shared experiences in learning environments. Although not as dominantly as the visual, there have been efforts in investigating the capacities of sound as a medium in understanding, representing and designing space in architectural learning. Some of the more cultivated intersections between sound and architectural education will

be briefly reviewed in this chapter.

The most archaic presence of sound in architectural education has been in the form of verbal communications. The efforts in understanding the nature of verbal communication in the architectural design studio increased 1980's onwards, with the rise of the protocol analysis technique. Verbal design communications in the studio, such as design instruction, critique, or collaboration and their effect on learning were investigated by scholars like Schön (1983, 1988), Dinham (1987), Akin (1986), Wendler and Rogers (1995), Anthony (1987, 1991). Schön (1983) argued that the "language of designing" consisted of the tightly connected verbal and non-verbal elements, which he assigned as foundational elements for his "reflective communications" theory (Schön, 1988).

Another tie between sound and architectural learning lies in the tradition of translating sound and space via graphic representations, notations, drawing and sketch visualizations. This tradition can be traced back to Bauhaus' pioneering interdisciplinary ethos. Even if it was not officially part of the curriculum, music played an essential role in Bauhaus, both in everyday culture and in cross-pollinating the disciplines. Some influential masters were affiliated with music and used it in their teaching:

"Kandinsky's conception of synaesthetics - the acoustic and optical equivalence between colors, shapes, and tones influenced his painting, and in his teachings inspired new forms of transcription for the translation of musical structures into visual compositions. Itten's basic courses in pictorial composition attributed a central focus to musical rhythm... Gertrud Grunow's "harmonizing theory", together with her concept of a unity of color, form, and tone assured a music-oriented class at the early Bauhaus" (Wingler, 1999, p.142).

Bauhaus's stage workshop, aspired cross-disciplinary forms of dance, movement, light, costume and graphic design with the use of sound and music. The credo of the Bauhaus teachings, from the elementary to a synthesis of the arts, could not omit music (Wingler, 1999).

Black Mountain College, iterated this tradition in the US with the involvement of seminal figures like John Cage. During Cage's teaching in the school (1948, 1952, 1953) his avant-garde and unconventional approach triggered the dissemination of new concepts and approaches in the context of liberal arts education. Known for his experiments and innovations in music, Cage's led the collective[2] creation of the first-ever "happening", later titled "Theater Piece No.1", in the dining hall of Black Mountain College. Such experiments with sound-space-movement, chance, indeterminacy, found-sound, etc. laid the groundwork for future generations of composers and interdisciplinary artists, with undulating effects for artistic and architectural education.

The Bauhaus originated exercises with sound, space and representation perpetuated to further geographies. An example is the Basic Design Course in School of Architecture in the Middle East Technical University (METU), Turkiye. Besides the exercises on rhythm and sound, experiments with color plates and musical scores, mechanical light composition apparatus controlled by music, listening to and painting language/sound impressions were common (Savaş, 2019). A footage from 1968 (ODTÜ GİSAM, 2021) shows a drumset being brought and played in the studio for the students to listen and visualize the sounds through drawings.[3]

The 1960's saw the flourishing of the conceptual and representational tools for understanding, documenting and interpreting space from a sonic perspective. Influenced by post-war contemporary art movements, modern graphic notation stirred the creative visual representations of sound. Sound-mapping, mappings about, in, of and by sound (McMurray, 2018) expanded the multisensory qualities of cartography, and evolved into digital formats after 1990's. Soundwalking exercises provided 'a deeper appreciation of each sound effect as a site-specific visceral experience' (Milo, 2019). A new generation of acoustic notions such as soundscapes (Schafer 1969, 1977/1994), acoustic communication (Truax, 1984), audio architecture

(Blesser & Salter, 2007) expanded the range of sonic conceptualization of the environment not only for sound artist but also for geographers, anthropologists, urban planners and architects. Publications like "The Eyes of the Skin" (Pallasmaa, 2005) invited architects to consider space through other senses. Such sound-based tools and concepts found more applications in architectural design studios or programs[4] dedicated to the study of sound and space. Milo (2019) presents from Harvey (2008) a summary of six categories of design studios as an example of working with sound in architectural education:

- Sonic-based form generators: sound or music is used to generate 2D or 3D graphics.
- Acoustic design: sound as data/numerical-based for distinct auditory programmes (e.g.signal-to-noise ratio for lecture theater).
- Acoustic communication: spatial design to achieve particular auditory communication or experience.
- Heightening auditory awareness: resonant objects or materials, sound installations or wind chimes (e.g.design for blind people).
- Virtual acoustic spaces: sound design for/in other media (animation, virtual reality or game engines).
- Soundscape studies: analysis and documentation through recording, observation and interviews of interior, urban or natural environments.

Although limited, there are published design studio approaches[5] that suit one or more of these categories. While all categories above benefit from digital media and tools, virtual acoustic spaces and sonic-based form generators depend on their innovative use.

In the universities worldwide, the most common sound study in architectural curriculum (Meriç & Çalışkan, 2013) is acoustic design. However, some scholars criticize the study of acoustics for forging the relationship between architectural design and the human auditory sense into a completely utilitarian nature. In undergraduate architectural education, the essentials of acoustics are mostly only taught in 'some architectural schools with an engineering focus and embedded in either building physics or architecture technology courses' (Milo, 2019, p.18). Fowler (2013b, p.160) states that "*precedents of engineering, mathematics and physics provide a rationalist paradigm of constraints in which the metrics of acoustic parameters are positioned as essentialist knowledge tools*", which leads to the optimization of the acoustic performance to take precedence over other design decisions. Harvey (2008) reporting from Lines's thesis (1997, pp.62-63) also problematizes the didactic approaches to acoustic education for failing to "*contribute to designers' ability to tackle acoustic design tasks*". Lines (1997, pp.118-119) iterates: "*These attempts to teach a domain of design knowledge separate from design have resulted in poorly remembered learning experiences often associated with dislike, anxiety and a perceived lack of relevance.*"

The intersection of sound and architecture captures a vast range of subjects and practices that reflect onto architectural education in ways beyond those presented here. Yet, an important note in this brief review of sound-related notions in architectural education serves the motivation of this paper. The emphasis on the very act of listening, even if it constitutes the basis of every sonic experience, is subsidiary or inexplicit. Not only the changing conceptions of sound and space but also the new discourses around listening require theoretical and practical updates on how it establishes relationships in architectural education. Hence, this article aims at bringing into discussion the role of sound in online architectural design studio with a specific emphasis on listening; both by resorting to the contemporary discourses on listening, and by pointing to the rather under-addressed potentials of new-generation learning environments at the service of architectural education.

3. Contemporary discourses on listening

The International Listening Association defines listening as "*the process of receiving, constructing meaning from and responding to spoken and/or nonverbal messages*" (ILA cited by

Usera et al., n.d.). Yet, the definitions, methodological approaches, and theoretical frameworks around listening multiply and fragment as listening is a multidisciplinary field studied by various disciplines such as psychology, communication, linguistics, anthropology, and management from wide-ranging perspectives (Bodie et al., 2008).

Nevertheless, Motzkau and Lee (2022) states that given how listening is a core aspect of human perception, communication and experience, it is surprising that scholars interested in listening have frequently called it a neglected, misunderstood and ill-defined phenomenon that is difficult to define and operationalize. Barthes (1985, p.260) calls listening an 'apparently modest' act, lacking a disciplinary home: because it "*does not figure in the encyclopedias of the past, it belongs to no acknowledged discipline*". Back (2007) suggested that our culture is one where listening has long been eclipsed by speaking. Similarly, Lipari (2014a) highlighted how listening has always been implied as a given, although being a key function of communication and has been positioned as the 'other' of speaking.

Listening is a prerequisite to sound's ontological existence, and therefore to communication. Nancy (2002/2007) defines sound neither as a thing in itself, nor an object that is present, and nor entirely independent of the listener as there is no essence of sound independent of listener/sense. He goes on to suggest an alternative model to communication that is not a transmission of information, but 'sharing of a self as it takes place', "*an unfolding, a dance, a resonance*" (Nancy, 2002/2007, p. 41). Sound in this sense is communication between synchronous, processual, intra-active, contagious, unfolding of co-constituting subjects (Motzkau & Lee, 2022) rather than being single-directional, isolated or stagnant.

Lipari (2014b, p.50) differentiates listening from hearing by emphasizing "listening" as a pursuit: "*Listening comes from a root that emphasizes attention and giving to others, while "hearing" is a passive phenomenon, as it comes from a root that emphasizes perception and receiving from others' including external sound sources.*"

While the early approach to listening[6] relegated it to "the acquisition of information" (Bostrom cited by Bodie et al., 2008, p.105), used in understanding how individuals listen during lectures or situations, "*this simplistic and linear notion of listening began to be replaced by a more sophisticated view, that acknowledged the multidimensional nature of listening*" (Bodie et al., 2008).

Hence, this article is invested in the reconceptualization and methods of listening advocated by artists, composers and scholars from the 1960's into the 21st century, investigating the broader and deeper understanding of sound in relation to the listener, culture and the environment.

A pioneering environmental approach was developed by the interdisciplinary movement of acoustic ecology in the early 1970's, led by R. Murray Schafer[7] and Barry Truax, as mentioned earlier. Schafer (1977/1994) described the necessity for an interdisciplinary acoustic designer, who's first task would be to "learn how to listen". He published numerous exercises on soundwalks, ear cleaning, etc. to increase the listeners' sensitivity and skills in discerning, analyzing, categorizing the ever-increasing complexity of our sonic surroundings.

> *"Many exercises can be devised to help cleanse the ears, but at first are those which teach the listener to respect silence. Stop making sounds for a while and eavesdrop on those made by others... Such sounds will not be found in every environment, but the listener will be forced to inspect every sound carefully in the search*" (Schafer 1977/1994, p.208).

Truax's Acoustic Communication (1984) resorted to the then newly emerging discipline of communication[8] by focusing on the information in sound, how it is "created, shared, distributed, consumed and used" (Simon Fraser University, n.d.), as well as its meaning for the listener and the interlocking behavior of sound as a system of relationships (Wrightson, 2001).

"*At the most basic level of each*

> *system (speech, music and the soundscape), we find that sound is in some way 'organized' and that through the structure of this organization, meaning can be inferred.*" (Truax, 1984, p.55).

To decipher these organizational structures, a listener could have a "soundscape competence", similar to competencies for linguistics or music. He offers acoustic ecology as a vehicle for auditory awareness, design intervention, urban planning and the conservation of particular soundscapes (Truax, 1984).

Both scholars reclaimed the learning position of the interdisciplinary listener in relationship to the environment:

> "*The listener, who can be considered an ever-learning open-minded and open-eared student, is invited to explore these relationships with the acoustic environment through a reflexive process which includes (1) exploration; (2) auditory observation; (3) the association with semantic constructs such as words; and (4) the documentation through the means available, including recording practices.* (Milo, 2019, p.8)

Pauline Oliveros, composer, performer, activist, has also been an influential figure in the listening field since the 1960's with her concept of Deep Listening. Deep listening takes the form of a performance, exercise, book, retreat, game or meditation, employing different types of attention, verbal and written inquiry, recording, sound-making, breathing, body movements and other such collective and/or individual activities. She explains:

> "'*Deep' has to do with complexity, boundaries or edges beyond ordinary or habitual understandings. ...coupled with Listening, is learning to expand the perception of sounds to include the whole space/ time continuum of sound - encountering the vastness and complexities as much as possible.*" (Oliveros, 2005, p.23).

Her theory and practice of listening is differentiated for its meditative and humanitarian approach, focusing on healing, expanding consciousness, understanding, developing compassion and intelligence through listening in every possible way to everything possible to hear no matter what you are doing. This approach to listening is more engaged with creativity, sensations, intuitions, thinking, feelings, and places experience above all. She claims listening to be a collective state of action and awareness that continually develops via multi-directional interactions. Her famous quote states: "*Listening is selecting, interpreting, acting and making decisions.*" (Oliveros cited by Tsonami and Tuned City, n.d.)

Oliveros intended for deep listening to merge the involuntary and unfiltered nature of hearing, with the voluntary act of listening involving selective inclusion and exclusion of sounds from the auditory experience. Numerous exercises and sonic meditations published in her books provide creative resources to experience the total spectrum of available sounds, by altering between focal and global attention, inclusive and exclusive listening etc. for anyone interested (Britannica, T. Editors of Encyclopaedia, 2023).

A more architecture-oriented account on listening was made by acoustician Barry Blesser and environmental psychologist Ruth-Linda Salter who coined "aural architecture"; spatial properties which can be experienced through listening (Blesser & Salter 2007, p.5).

> *"Aural architecture is that aspect of real and virtual spaces that produces an emotional, behavioral, and visceral response in inhabitants which are parallel to those of visual architecture, except that the space is experienced by listening rather than seeing.*" (Blesser & Salter, 2006, p.1).

They coin "auditory spatial awareness", a fundamental skill in experiencing space by attentive listening, which can be developed from listening experiences and sonic practices, similar to the ones Schafer and Truax suggest (Fowler, 2015). Aural architecture focuses on the experiential qualities of space, beyond the scientific and physical properties of sound in space.

Likewise, the aural architect is not an exclusive specialist (like the acoustic designer), but "an ensemble of roles often unaware of their contributions towards our aural experience of a space". They locate aural architecture at the "interdisciplinary bridges" (Fowler, 2015) of many disciplines interested in human experience, but mainly physical science, perceptual psychology, and cultural anthropology (Wrightson, 2001).

More recently, architect and sound designer Fowler (2015, p.69) proposed "critical listening", problematising the ongoing disconnection between architecture and listening: "*Both aural architecture and soundscape studies have nominated themselves as somewhat equipped to tackle, or at least present alternative frameworks for conceptualising sound as a design parameter leaves the processes of architectural design still in need of new ears*". He defines critical listening as "*an acute attentiveness to the impact and potential of sound to act as a purveyor of meaning also assists in illuminating the hidden characteristics of an architectural context*" (Fowler, 2013b, p.171).[9]

In the last decade, critical investigations on the rather overlooked political, ethical, cultural etc. consequences of listening practices and theories arose. An increasing number of scholars resort to feminism, racial biases, new epistemologies of nature and culture through listening.

Musical scholar Nina Sun Eidsheim's "Ethical listening" (2019) draws on listening being an encultured experience that offers a choice of exploration or rejection, as long as we acknowledge our "trained ears" and listening practices conditioned by political contexts, societal positions and power dynamics we are situated in. With this recognition, the first step of establishing an ethical listening framework, she proposes, is to ask: "who am I, the one who is listening? instead of "who is it speaking?" (Eidsheim, 2019). She uses the term "informal listening pedagogy" to address how our listening experiences and expectations are formed by the dramatization of our everyday experiences (Eidsheim & Whelden, 2018).

> "*In our daily lives, we act out an entrained listening pedagogy with such frequency and confidence that we complete the process with almost no awareness of our continuous stream of automatic responses. Our attention is only drawn to the fact that we are responding automatically when there is a disagreement between the internal response that we believe to be correct and the external response that our experiences provide. Where do these automatic and naturalized responses come from? How do listeners, in a given time and place, come to the same, seemingly intuitive "answer key" to a question that could invite complex and nuanced responses? Why do these responses align with structured racial divisions that underpin social, cultural, and political actions and relations?*" (Eidsheim & Whelden, 2018, p.678)

Annie Goh (2017) presents a feminist account on listening by problematizing the shortcomings of sound studies in theorizing knowledge production. In examining "the subject-object relation in sonic knowledge production, most often theorized through listening" she claims that "the majority of sound studies work leaves both the subject and object implicit". Goh (2017, p.284) states: "*Feminist epistemologies, positioned against a presumed neutrality in science and philosophy, have demonstrated the uncritical continuation of a traditional subject-object dualism to be a crude limitation on knowledge practices.*". Deriving from Haraway's "Situated Knowledges" and feminist epistemologies, her article launches "sounding situated knowledges", a sonic knowledge production method aiming to disrupt the dominant dualisms of traditional nature-culture and subject-object relations for sound studies. Her study in archaeoacoustics, examining the role of sound in human behavior in archaeology, illustrates an example of exposing "*the importance of both embodiedness and situatedness for sonic knowledge production.*" (Goh, 2017, p. 284)

As a final account, Motzkau and Lee's (2022, p.16) "cultures of listening"

is a concept devised to capture "*circumstances where listening has become a function of authority; that reduce modes of listening, to a unidirectional form of validation*". To distinguish and characterize authority-driven cultures of listening from others, they resort to the emancipatory and relational concept of 'listening with care', based on Puig de la Bellacasa's (2014) notion of care, as they illustrate in their study on child protection practices in the UK.

4. Listening (presence) in the online architectural design studio

This brief review of critical discourses and practices of listening, provides a compelling impetus to reimagine the scope and potentials of listening for architectural education.

As stated, listening is an integral and inextricable cognitive, social and pedagogic act for every architectural design studio. However, the implicit or explicit practices, the spatio-temporal habits, protocols, hierarchies, traditions around listening should be rightfully considered as part of the hidden curriculum, and as suggested by Dutton (1991), be critically examined for the unstated values, attitudes and norms prevailing in architectural education.

Listening, in the context of architectural education, entails much more than what can be reduced to information processing. Particularly in the design studio, listening has the capacity to establish meaningful and sensitive learning relationships within the studio community, as well as with the environment, geography, society, ecosystems, human and non-human beings at large. As addressed earlier, biases, cultural conditionings and power dynamics could also stem from lack of or problematic practices of listening, with dire consequences and missed opportunities in spatial imagination and creativity.

How do architects learn to listen? The non-native nature of the geographically dispersed hybrid studio environment, and its unfamiliar communicational conditions, made the authors, who designed and tutored the below presented design studio case, question the otherwise unacknowledged listening practices in the design studio.

Advances in virtual communication and collaboration technologies, including immersive and simulated design environments, have enabled new modalities of learning and teaching design at a distance (Jones et al., 2020; Rodriguez et al., 2018; Sopher et al., 2019) (Nespoli et al., 2021). In-person listening and listening through digitally transmitted signals via electroacoustic devices are technically, experientially and ontologically different. Yet, Oliveros (n.d.) points to listening regardless of these differences: "*The base skill is listening: how I'm listening to the material, how I'm listening to the space. With electronic sound, it's a similar situation of how to produce it and place it so that it works in a space.*"

Henceforth, the article offers the online design studio as an "acoustic community", defined by Truax (1984, p.58) as "*any soundscape in which acoustic information plays a pervasive role in the lives of the inhabitants (no matter how the commonality of such people is understood*)". In this "information rich" system, sound plays "*a significant role in defining the community spatially, temporally as well as socially and culturally in terms of shared activities, rituals and dominant institutions*" (Truax, 1984, p.59).

For members of an acoustic community, the act of listening emerges as an existential practice. Truax (1984, p.xii) states listening as "*creating a relationship between the individual and the environment, whether interactive and open-ended, or oppressive and alienating*". Particularly, considering the first-year design studio's role in establishing foundational habits in approaching, understanding and representing complex spatial environments, motives such as "auditory spatial awareness", "soundscape competence", as well as "critical" or "ethical" listening appear resourceful in triggering inclusive and creative opportunities for an acoustic community dedicated to architectural learning.

To further this investigation, the paper will resort to the project series Spaces of Sounds,[10] designed specifically to take advantage of the altered relationship with space, sounds and architectural communications in the

first-year online design studio. Exploring the immediacy of digital and physical spaces with sounds, newly formulated design exercises involving deep-listening, sound-mapping, graphic scoring, explorative notational drawing were employed to produce collective and individual design projects.

This series of experiments will be examined in their pedagogic methods, use of audio-spatial design communication tools and their learning outcomes. These newly formulated, or adapted pedagogies which operate through audio medium and acts of sound, will be examined and discussed for their capacities and potentials in; enhancing architectural learning, providing an often-disregarded connection to space and to the (online) design studio community, enhancing an audio-spatial awareness in understanding the environment through listening, and the architectural potentials of sound as a collective and individual design tool.

5. A case study: Spaces of Sounds, explorations on space and sound

The severe Covid-19 restrictions in Turkey prohibited all physical gathering at the universities, including the schools of architecture. Education was transformed entirely to online platforms and all participants (students and tutors) resided in their own locations, spanning across Turkey and countries abroad.

Starting architectural education online presented particular challenges to students who were unfamiliar with the language, tools, skills or architectural design studio culture refrained from social connections. The tutors' response to gage this difficulty was to seek for novel and engaging connections through whatever means possible: writing of a studio manifesto, having students install it in their living spaces to turn it into a DIY studio environment, where all living and non-living constituents of their close environment (including household members, pets, everyday items, furniture etc.) blend in as creative opportunities for architectural learning. 'Spaces of Spaces' project series aimed at introducing basic tools and concepts in architecture, by employing scale, sound and light as space-making agents.

The second module of 'Spaces of Spaces', "Spaces of Sounds" was a "*three-week long project in the first term of the first-year architectural design studio, composed of two working modes: common studios where workshops and guest lectures*[11] *were held with 95 students and 8 tutors, and studios within 4 sub-groups where collective and individual design projects were developed with 24 students and 2 tutors*" (Türkkan & Avanoğlu, 2021) (Figure 1). The three workshops offered students different focuses on sound in relation to space, using the online interfaces allocated for the design studio.

5.1. Workshop 1: Listening to and through the new design studio environment

The workshop series began with an inspiration from Deep Listening exercises by Oliveros (2005). Run by the Spaces of Spaces tutors, the workshop focused on "*listening as an agency to raise our awareness of the sensory realm of sound in establishing the new hybrid environment we inhabit as our studio space*" (Türkkan & Avanoğlu, 2021). The auditory setting of our new studio space consisted of multiple physical, electro-acoustical, electro-visual and digital layers: our separate physical environments where studio participants (95 students and 8 tutors) were present during the occasion (bedrooms or study rooms in dorms or homes, living rooms, university offices, occasionally outdoor or public spaces), the chosen software platform of online education (Zoom), the hardware devices that captured the sound from our physical environments, transmitted electronically and digitally to serve it to our ears (microphones, computer processors, speakers), and the infrastructure for the communication network (cables, satellites, etc.) to transmit the audio data across geographies.

The first workshop was structured as an experiment series on Zoom, investigating the capacities of audio-visual notations and sound controls in three different settings. 103 participants (ex-

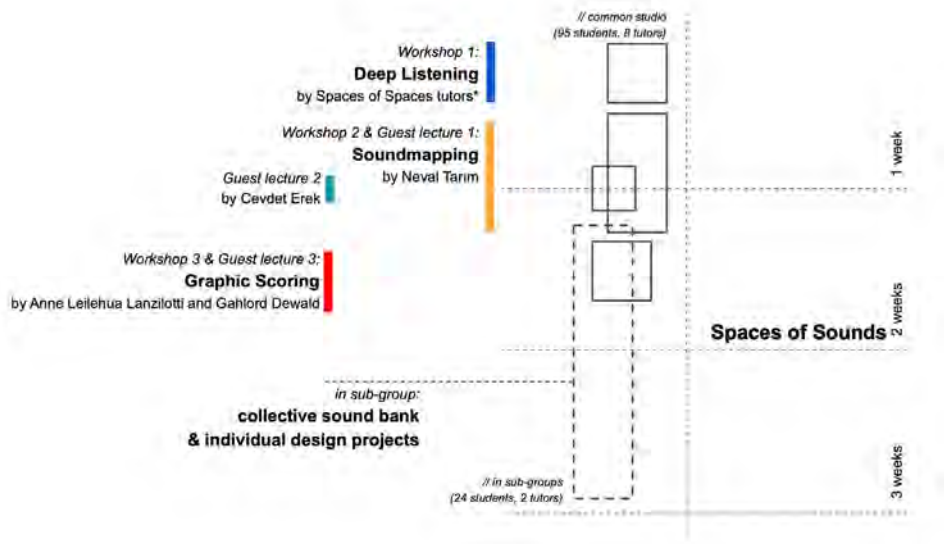

Figure 1. *Spaces of Sounds, module structure.*

cept the tutors who orchestrated the session) were asked to keep their microphones and cameras either on or off depending on the requirement of the exercise (Figure 2).[12]

Experiment 1: *All microphones off, cameras on.* The students were invited to listen to 4 short musical excerpts[13] from Youtube and make free-technique drawings while listening. This exercise drew from the tradition of synaesthetic translations between heard and imagined. As a warm-up exercise, it opened the ears and mind to the sensitivities of sound and music, while producing an expressive visual outcome to share personal and subjective experiences with the rest of the studio.

Experiment 2: *All microphones on and all cameras off.* This setting was the exact opposite of the common use of Zoom during classes, where usually all the microphones are switched off (except for the tutors and speaking student/s), all the loudspeakers and cameras on (although most students opted for keeping them off).

For the first 3 minutes, all participants quietly deep-listened to the sounds simultaneously coming from all microphones of 103 distant physical environments, reverberating, sometimes highlighting secondary environmental sounds due to Zoom's algorithm (like airplanes or sounds from other rooms). In the next 10 minutes, while still deep listening to the sound of the space, students were posed a set of questions from Oliveros' sonic meditation called "Ear Piece" (Oliveros, 2005, p.34) and asked to respond on a piece of paper by drawing or writing.

This unique experiment, drawing from Oliveros and Alvin Lucier's 1969 sound art piece "I am sitting in a room", transformed the digital space that blended our physical spaces into an electro-acoustical musical instrument. The amalgamated sound was a unique electronic, sometimes organic, for some disturbing, unprecedented, deep and constantly changing, living sound piece.

Having no clues on what to expect from this listening experience, all participants (including the tutors) developed an auditory sense of the scale, depth and complexity of the new studio environment, as well as Zoom's own sound algorithms, protocols, our choices in sound managing options (muting controls).

Experiment 3: *Dividing students into breakout rooms on Zoom in groups of 9, having one student from each group to turn microphone on and camera off.* The student with the microphone on, camera off, for five minutes, performed an auditory depiction of her/his room without any verbal communication, but only by making sounds through the sound capacity of found items,

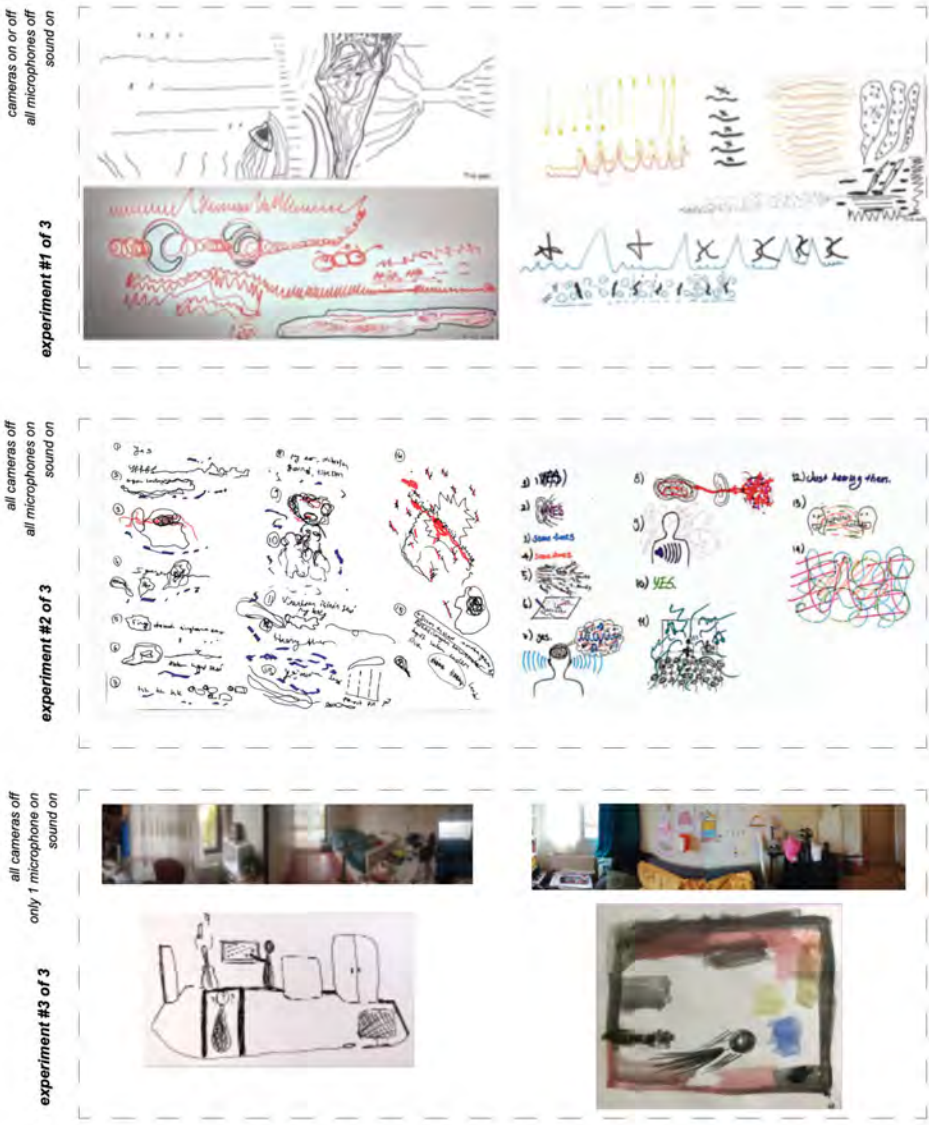

Figure 2. *Deep Listening workshop outcomes.*

walls, hard and soft surfaces and furniture etc., by hitting, scraping, tinkling, sweeping using their hands, body or other items. Meanwhile the other 8 students listened and drew a plan or perspective of their auditory perception of the room.

This, also newly formulated audio-sensory game, visualized through drawings, allowed students to engage in smaller groups, and opened a unique door into each other's personal spaces. At the final, the listeners' drawings were aligned on Mural, shared with the sound-performing room owner, compared and discussed in relation to the actual room which now could be visually perceived.

The focus on listening in the first workshop enhanced three social experiences: individual engagement with the big group, deeper audio-spatial comprehension of the shared digital space, and personal connections within a smaller group of peers. In all three experiments, writing, drawing, graphic notations and other audio-visual narratives enhanced a deeper understanding and representational expressions of the shared sound-spaces.

5.2. Workshop 2: Listening to the space, synaesthetic communications

The following workshop titled "What sound is your room?" by architect and contemporary sound-artist Neval Tarım, invited students to listen to "*the sounds of their bedrooms in 24-hour cycles and visualize their observations*

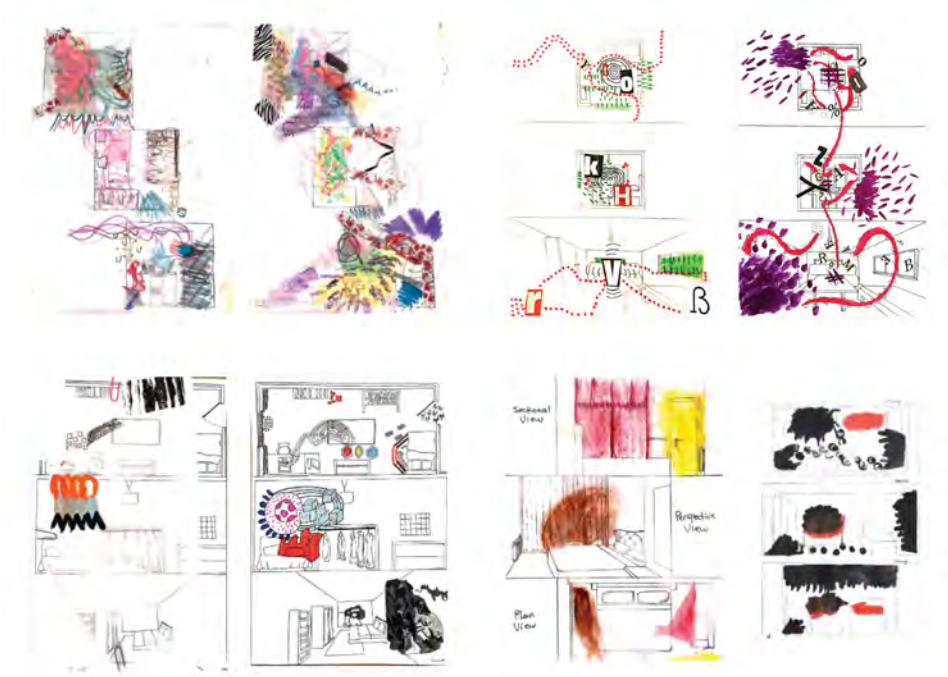

Figure 3. *Sound-mapping workshop by Neval Tarım.*

as sound-mappings through image and text" (Türkkan & Avanoğlu, 2021). Students, mostly locked-down in their living spaces, had a chance to depict the sound events in their everyday environments, routines, movements, connections, exchanges with neighbors, household, outer world and moments of silence and disconnection (Figure 3).

The two-day workshop aimed at understanding sounds in relation to their immediate surroundings, and explore various representational languages and visual expressions for the ephemeral and temporal happenings in space. This experience was also crucial for the early realization of how architectural space, hence architectural representation (as often taught in first year via technical drawing classes) doesn't only consist of the static and measurable elements, but also by movements, cycles, temporalities that transform space via experience.

5.3. Workshop 3 and final project: Designing spaces with sounds

For the final project of the module, the studio was divided into four sub-groups which developed their own design agendas to the brief. The authors' group chose to explore "*everyday objects and immediate environments as potential sound tools and design agents for creating spatial experiences*" (Türkkan & Avanoğlu, 2021). This phase entailed the making of a collective sound-bank and individual sound reenactment projects.

The design process began with building the collective sound bank. Students were asked to find everyday items at home "*to explore their sound capabilities through performative acts*" (Türkkan & Avanoğlu, 2021). Through a set of sound-abilities like 'reflecting', 'amplifying', 'absorbing', 'distributing', 'transmitting', 'diluting', 'deforming', they performed random everyday objects such as chair, carpet, glass, plastic bag, fan, hair-dryer, radiator, wall etc. and transform them into sound-tools. Via audio-visual transcriptions (text, drawing, diagram, photo) these audio-performances were stored in a "bank" (on a Mural board),[14] available for the use of the group (Figure 4).

In the third workshop, the collection of audio-visual notations in the sound bank were shared with composers and performers Anne Leilehua Lanzilotti and Gahlord Dewald, who interpreted these notations as scores and performed them with violin and bass. Students were able to listen to their own drawings, and observe their potential synesthetic expressions (Figure 5).

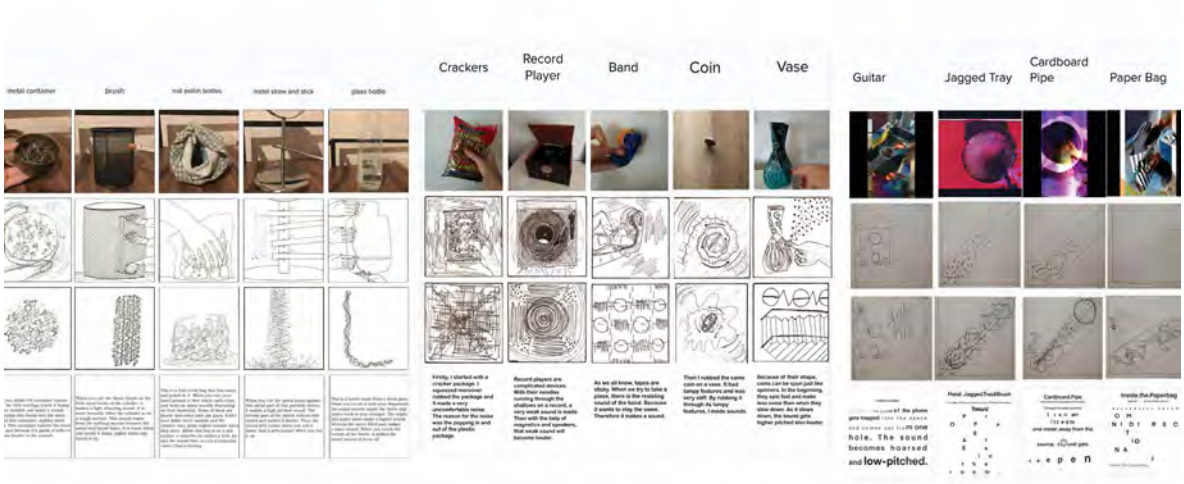

Figure 4. *The collective 'sound bank' items found at home recreated as sound tools.*

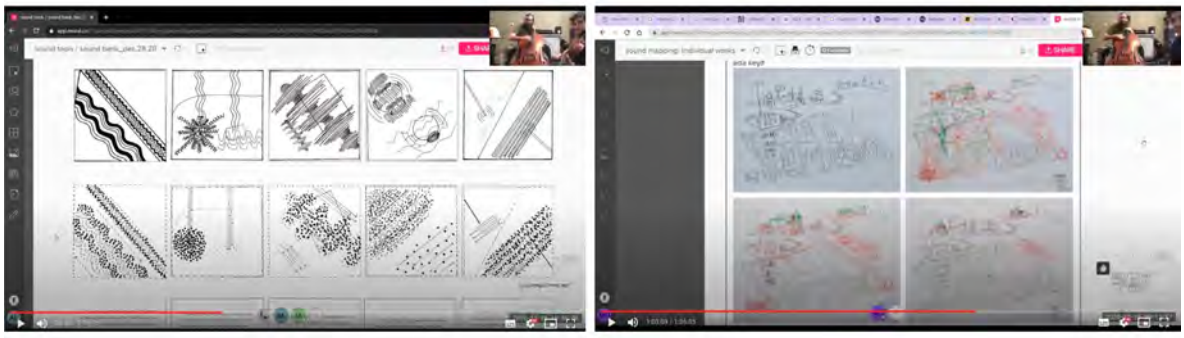

Figure 5. *A.L. Lanzilotti and G. Dewald performing students' works during the workshop. December 28th, 2020, via Zoom.*

Providing a wide variety of sound-tools accessible at home, the collective sound-bank was moved to the next stage; the "individual sound reenactment project". At this point, students were asked to "*recall an auditory experience they missed the most during the lock-down*." (Türkkan & Avanoğlu, 2021). Answers included being on a crowded street, a loud bar, in a football stadium, on a beach, etc. The brief invited students to re-use the tools in the sound bank and individually "*create a sound-space setting which reenacts that particular audio-spatial experience within their homes*" (Türkkan & Avanoğlu, 2021) (Figure 6). These audio-spatial reenactments were eventually articulated into programs of leisure, dialogue, self-expression, socialization and isolation for their own use.

Most projects designed a physical setting manipulating the spaces, items and sounds available in their immediate environments (Figure 7). Proposals included: "*mechanisms attached to the room, performed by the body to reenact the sound of a crowded street"; "an audio-spatial construction made by coat hangers to reenact the sound of a road trip to the bay", "a table-setting proposing sound therapy"; "a bodily experience of being in a bathroom during a party"; "a social game-design to discover sound as a tool to interact with others"; "an apparatus for the need to self-isolate during pandemic*" (Türkkan & Avanoğlu, 2021) (Figures 8-10). Via drawings, diagrams, collages and gifs, students also developed the audio-visual representations of these designed settings within their living spaces.

This final project emphasized the capacity of sound and listening in shaping and characterizing spatial experiences, as well as promoting them as architectural tools for spatial imagination and creativity, even with limited resources, tools and mobility.

Figure 6. *'Sound bank' organized items according to their abilities, to be used in individual design projects.*

Figure 7. *Individual design projects in their relationship to the 'sound bank'.*

6. Evaluation and discussion of the listening (presence) in online architectural design studio

While fulfilling most learning requirements for the first year within the conditions of online education, this pedagogical exploration also established a type of presence that is often overlooked in the conventional design studio education: listening. Resorting to the "*sensual realm of sound*" (Türkkan & Avanoğlu, 2021) reinforced students' active presence in the studio, while bridging the socio-physical gap among our private houses, computer screens and the world through unique listening experiences.

Working with listening had twofold inputs into the process: in designing an online curriculum and prompt audio-spatial awareness in architectural learning.

Designing the curriculum around sonic-based experiences and tasks

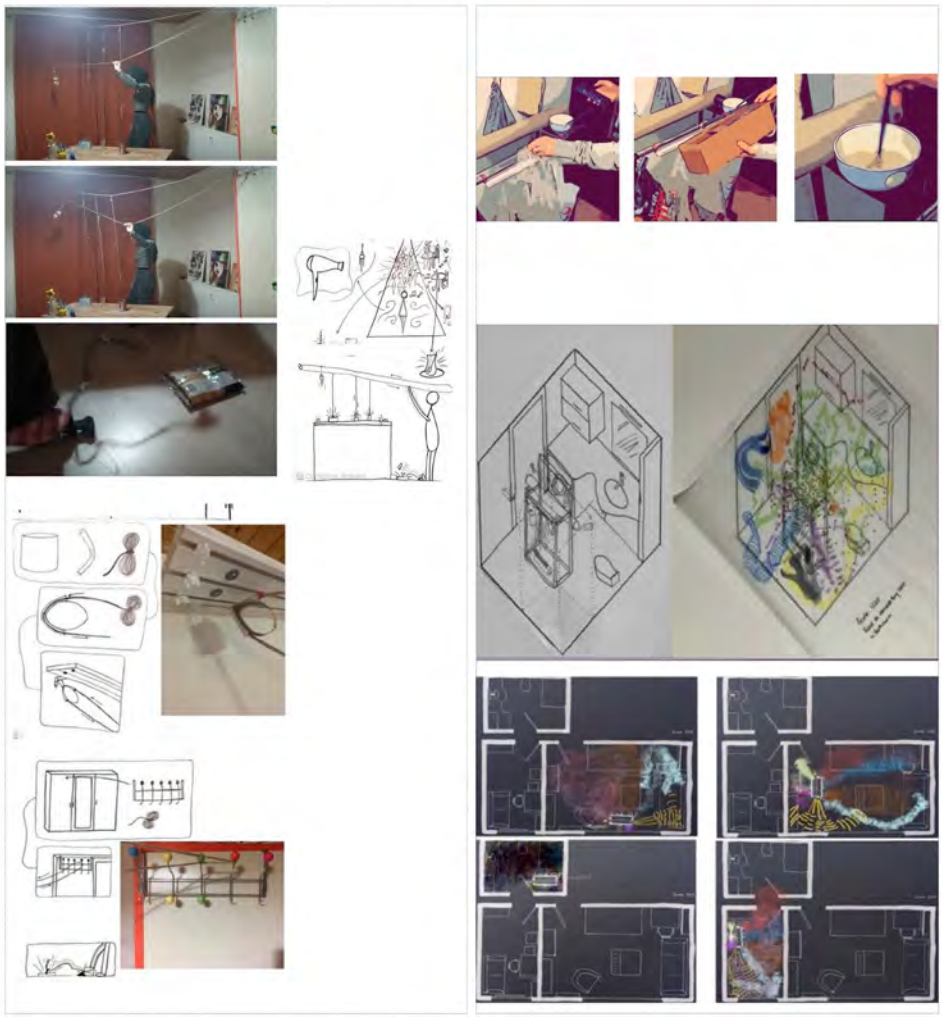

Figure 8. *'Crowded' by Aybüke Akdağ, 'The Road to Demircii Bay' by Sevi Candan Ünal Çağlar.*

played a crucial role in constructing the social, cultural and pedagogic foundations much needed in beginning architectural education in the absence of direct encounters in physical space. Emphasis on listening significantly increased the opportunities for students' presence and engagement on various levels: with their own surroundings as part of their architectural learning journey (their immediate lock-down spaces, homes, neighborhoods, rural or urban landscapes and living companions), amongst peers (getting to know each other, exchange experiences and collaborate from a distance), and lastly with the tutors in a nurturing, non-hierarchical dialogue.

As previously reviewed, listening can play a significant role in enabling peculiar forms of relationality, agency, and interaction. This was observed in the process of the first-year studio, despite the difficulties and restrictions of physical isolation. Some of the pedagogical qualities that were aimed and observed in the learning outcomes were:

- Realization that listening is a state of action, a set of choices, therefore a relational and political attitude
- Understanding that space is a dynamic, temporal, multi-layered entity of complex interactions rather than a static image
- Emphasizing interconnectedness and the role of sound in establishing relationality (between body, built environment and geographical scales, between electronic, digital, analog sound mediums)
- Exploring representational media (drawing, mapping, sketching, nota-

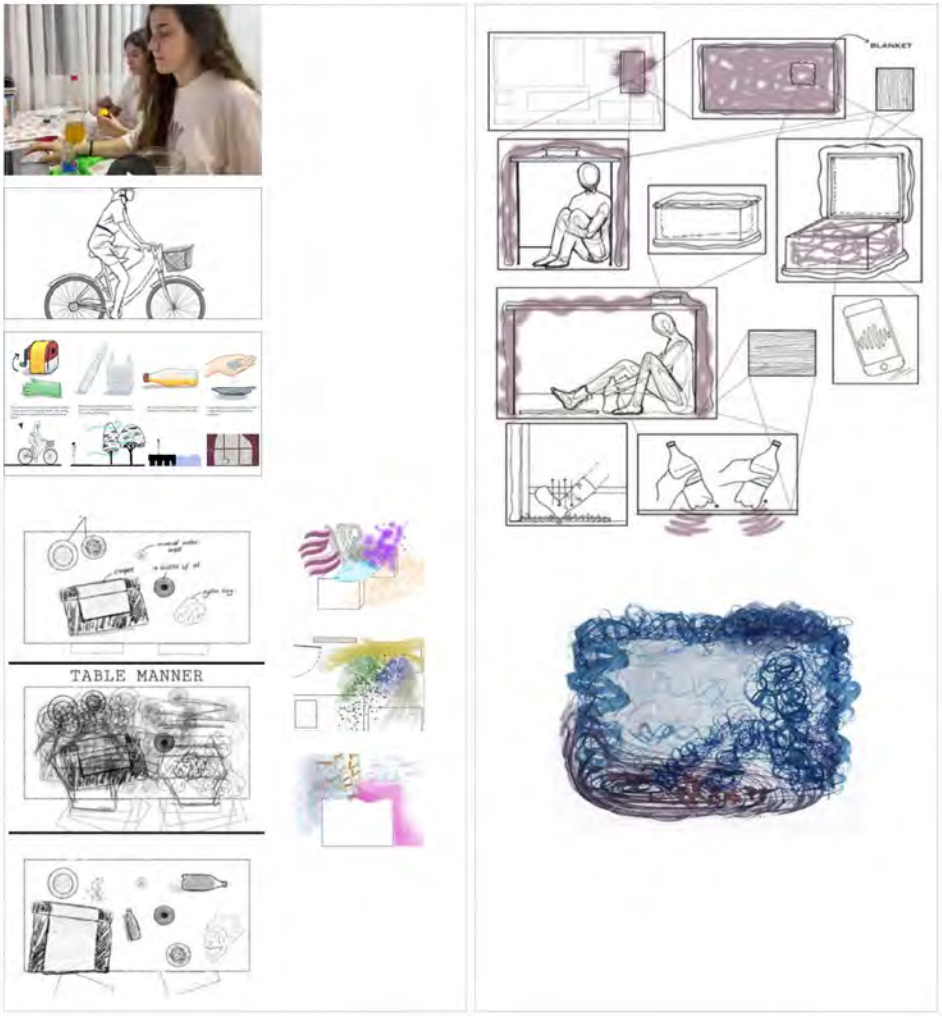

Figure 9. *'Therapy with Sounds of Nature' by Aleyna Şen, 'In a Bathroom at a Party' by Zeynep Aslan.*

tion) to decipher spatial information that is not only visual
- Discovering the specific sound characters of spaces (aural architecture of stadiums, schools, supermarkets, beach, everyday spaces and objects) and working with them as design tools
- Understanding the agency of bodily movements, intensities, positions as sound potentials contributing to spatial design
- Through design process, exploring potentials of spaces, materials, bodies, actions to create new audio-spatial experiences, testing ideas and developing architectural programs

Additionally, this experience created an opportunity that would not have occurred in a conventional design studio setting. Due to the differences in each students' location and surroundings, their remote yet synchronous acts of listening to each other's environment added an extremely rich spectrum of found, studied and documented audio-spatial scenarios and as many design potentials. The knowledge pool of the design studio expanded with the auditory knowledge and experiences coming from a wide range of indoor and outdoor spatial settings, geographies across Turkey and abroad. This also marked a significant divergence from the often problematized isolated, self-validating, studio-centric tradition of the design studio culture.

7. Reflections on the new architectural learning environments and listening for architectural pedagogy

In an article published before the pandemic, Brady (2017) already

Figure 10. *'The Combination Game' by Ataberk Erbaş, 'Sound Isolation' by Sedanur Yıldız.*

discusses how it is extremely likely that architectural education, and design studio, will be conducted primarily online in the relatively near future. He rightfully points out the need to address the potential benefits and pitfalls before an online version of that culture "acquires its own bad habits" (Brady, 2017).

This might already be the case for some online design studios, which automatically followed the given use of the interfaces, and already developed unconscious new habits, norms and procedures for listening that perpetuate the problematic conventions of design studio culture.

However, the advancements in information communication technologies enables further opportunities to leverage the capabilities of digital/ remote education platforms with pedagogies that promote a more emancipated agenda and studio dynamic for architectural learning.

Harvey (2008), underpins this point by stating "contemporary convergence of electroacoustic practices with spatial studies might be the catalyst to generate new concepts of spatial design and experiences in built and digital space". He suggests "for such a renegotiation of spatial concepts to occur, design pedagogy must embrace the unique needs of an aural training for architects" (Harvey, 2008, p.63).

He asks: "*If the research into the acoustic environment, auditory spatial awareness and electroacoustic music are ways of thinking about the sounding world, then why are they not formally part of schools of spatial studies?*" (Harvey, 2008, p. 63)

Hereby, the article concludes by

addressing listening as an underdeveloped pedagogical opportunity, and underlines its potentials for critical pedagogic practices in architectural education.

It is on the curriculum designers and studio tutors to creatively and critically guide new architectural learning scenarios by blending existing and emerging online, virtual, augmented environments and technologies with direct experiences of immediate physical spaces and personal encounters. Such an effort could benefit from inter, multi and transdisciplinary expertise, as well as the range of critical discourses and practices on listening, as briefly presented in this article. Educational experiments can multiply pedagogies that "*embody the experience of auditory space; include critical exercises through which to understand the scope of auditory perception and its relation to other sensory systems, the development and application of aural memory, and the discovery of generative acoustic design methods*" (Harvey, 2008, p. 66).

Listening practices that are critical, deep, ethical, feminist, etc. could trigger emancipatory transformations in the historically assertive and dominant architect-stereotype. They can help construct novel and authentic "acoustic communities" in and for architectural learning through digital, physical or hybrid mediums.

Architectural education today is confronted by an unprecedented set of social, environmental, technological disruptions (Türkkan, 2023). Hence new horizons that will tackle the political, ethical and systematic issues in architectural education cannot be merely characterized by technological improvement or changing medium. It is only through critical eyes and ears that these technologies and communication models can propagate new protocols, ethics and means of listening between architects, non-architects and the environment.

Endnotes

[1] Pivot to Online Learning, Discussion Sessions + Videos https://www.acsa-arch.org/2020/03/13/pivot-to-online-learning-discussion-sessions/?fbclid=IwAR2bAxq8UCPD0_zWB9ctEZQyOBOpB1CqXZv_6nQPCKkUDTIuVjr6Wg4TEXs, also available at "Pivot to Online Learning, ACSA Conference Series: https://www.youtube.com/playlist?list=PLI234IEo5Aw9G9KuuYVbDNcMPdq84_Vz6 (retrieved on 10.03.2022)

[2] With the contribution of Robert Rauschenberg, composer David Tudor, poets Charles Olson and M.C. Richards, and the choreographer/dancer Merce Cunningham.

[3] The footage titled "ODTÜ Mimarlık Fakültesi'nde Bir Ders (1968) – BELLEK 65" can be viewed at the following link shared by ODTÜ GİSAM (2021): https://www.youtube.com/watch?v=cdP4PQjb_vk

[4] Milo (2019) provides an extensive list of sound-based studies within schools of architecture and design around the world and acoustics research groups collaborating with architecture schools.

[5] Some examples of sound studies in architectural design studio can be cited as: soundscape studies (Harvey, 2005, Cerwén, 2016; Llorca Bofí, 2018; Kandemir & Özçevik Bilen, 2020; Al-Ibrashy & Gaber, 2010; Fowler, 2013a; Hong & Chong, 2023), auditory awareness (Sheridan & van Lengen 2003; Ham, 2003; Harvey, 2005; Fowler, 2010, Llorca Bofí, 2018;), Sonic-based form generators (Harvey, 2005), virtual acoustic spaces (Llorca Bofí, 2018).

[6] A detailed review of listening related research from 1940's onward can be found in the work of Bodie et al. (2008) in three primary areas - information processing, competent behavior, and individual differences perspectives from the "cognitive revolution" to the rise of human information processing models.

[7] Schafer was the first to coin "soundscape" and founded the influential research and education group in Simon Fraser University called the World Soundscape Project (WSP).

[8] Truax (1984) made a nuanced interpretation of a communication model via soundscape by pointing to the factors such as the type of sound, human sensitivity, physiology, psychology and other measures that sophisticate "our relationship with sound and the environment through sound", as

opposed to sound being perceived as an isolated object in the environment for the human listener to receive.

[9] Fowler (2013b, p.171) offers to use critical listening as a design method and an analytical framework to bind closer the already symbiotic relationship between the designing of sound and the designing of space by promoting new design methods, technological adaptations to form-making, and bringing a range of innovative tools.

[10] 'Spaces of Spaces' project series include 'Spaces of Scales', 'Spaces of Sound' and 'Spaces of Light'. The studio is led by eight tutors in four subgroups: Sevgi Türkkan & İpek Avanoğlu, Çiğdem Eren & Buse Özçelik, Ahmet Gün & Merve Öksüz, Deniz Leblebici Başar & Tarık Çelik, in ITU Faculty of Architecture in 2020-2021 Fall term.

[11] Three guest lectures were held in alignment with the workshops: first lecture was given by architect and contemporary sound-artist Neval Tarım on sound-mappings, the second lecture was given by contemporary artist, musician and architect Cevdet Erek on his personal experiences and explorations in the intersectional field of sound and architectural space. Third lecture was given by composer and performer Anne Leilehua Lanzilotti on graphic scores through the relations between music and architecture. The lectures guided and inspired students to further engage with the topic.

[12] During all experiments students' and tutors' loudspeakers and screens were on. Whether anyone used loudspeaker or screens in addition to their pc's or laptops was not controlled or relevant for the execution of the experiments.

[13] Music pieces listened to: 1- Brutal Ardour (Variation On 'The Canon In D Major' By Johann Pachelbel); 2- John Coltrane - Resolution; 3- Erkki Kurenniemi - Inventio / Outventio; 4- Ergo - Yet but.

[14] The sound bank and the student works can be visited at the 'Spaces of Sounds' website link: https://soundtools2021.hotglue.me/

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Search for a new metafunctional education pattern in basic design studios after the COVID-19 pandemic

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Abstract

After the COVID-19 pandemic, basic design studios given in the first year of architectural education in Turkey have undergone a new accelerating process based on using physical design techniques with digitalization. The current study proposes a new curriculum that integrates the ideational, interpersonal, and (con)textual metafunctions of language into basic design learning to facilitate the integration of physical and digital tools. It was applied in the first semester of the basic design curriculum through face-to-face education. At the end of the term, we surveyed first-year students to learn about the positive and negative aspects of making designs in physical and digital environments. The results demonstrated that they are undecided and have some hesitations in representing their design ideas physically, while they are relatively confident of the advantages of designing in the digital environment. However, although 3D representation has become easier with the use of digital tools and students' digital representation skills have improved, it has also been observed that students' perceptions and understanding of 3D and spatiality have not improved at the same rate.

Keywords

Basic design education, Digital representation tools, Language metafunctions, Physical representation tools, Post-pandemic design curricula.

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1. Introduction

Architectural education in Turkey has been established on a two-partite ground of a design-learning approach, which consists of basic design teaching for first-year students and architectural teaching for consecutive years in a four-year education period. Basic design education covers the learning of the fundamental principles of making design in general respect; therefore, the Bauhaus education system may also be followed to teach the methods and principles of abstraction, Gestalt and composition principles, design themes, and elements during the first year—and especially in the first semester. In this respect, first-year education mainly comprises a curriculum that teaches students to reflect upon a design idea and derive concepts by producing in the physical environment. However, expressing a design idea with different representation techniques—including digital ones—communicating interpersonally using these techniques, and the effects of these techniques on students are not generally undertaken among the main aims of basic design studios.

In architectural education, on the other hand, students are introduced to the realistic and concrete design phase of the curriculum and start to produce within a tangible and realistic design language. They jump into a new world whose rules are composed of the multi-dimensional problems and solutions of architectural design, such as the choices of materials, structures, and spatial programs with complicated functional approaches. The concept derivation phase may be kept shorter in time, and the phase covering the project's development in realistic details with different representation techniques—especially digital ones—is favored and spans longer. Therefore, after a one-year education focusing on learning concept derivation and its representation with physical techniques, students generally have difficulty adapting themselves to digital representation techniques used for both concept derivation and project development phases and interpersonal communication. Hence, the education system of architecture in Turkey generally has a break between the first year and the consecutive ones in terms of the design of the curricula and the balance between conceptual reflection and interpersonal expression. In this respect, providing a smooth transition from the first year to the upper years has always been among the essential issues of the education system.

To facilitate the smooth transition from basic design to architectural studios in architectural education and to strengthen the ties between them, a joint conceptual and verbal competence structure can be established in the curricula. At this point, if it is considered that design corresponds to a language, it would be helpful to examine the grammatical models of linguists. A critical system that has previously been integrated into the curriculum of design studios is Michael Halliday's (2004) theory of Systemic Functional Linguistics (SFL). This system describes three basic metafunctions (Halliday, 2004): ideational, interpersonal, and textual. While the ideational phase defines a passive and reflexive level where the individuals search for and reflect on their thoughts through language, the interpersonal phase represents an active level based on the exchange of ideas and active communication through which individuals express their thoughts. On the other hand, the textual plane corresponds to the grammatical parts and the whole and their relationships through the structural elements of the language to make meaning (Halliday, 2004). Although this system has been widely undertaken comparatively and analytically in the cognitive processes of design thinking and representation, it has not yet been approached based on a basic design studio curriculum.

On the other hand, basic design education in architecture schools has a structure that forms the core of the design education system. Architectural education has always needed transformation and adaptation to the emerging dynamics of contemporary tendencies since integrating the Bauhaus approach in basic design courses (Norberg-Schulz, 1988). However, as Christian Norberg-Schulz (1988) also stated, to address the complexity of

architectural problems, the education system should renew itself in terms of contemporary issues and tendencies. In this respect, the trials to renew the education system and open new ways of comprehending and representing design should be increased to integrate basic design curricula to the changing necessities of the time.

Therefore, basic design education with curricula primarily based on the Bauhaus school tries to survive in the age of information technologies. Hence, the adaptation tendencies have already started before the COVID-19 pandemic (Özkar, 2017). The discussions of the use of digital tools in basic design education have been accelerated by the changing needs for time management and augmented expression possibilities provided by these tools in the new age (Caldwell & Woodward, 2012; Özen Yavuz & Yıldırım, 2012a; Uysal & Topaloğlu, 2017; Özgen et al., 2021). However, especially when we examine the basic design education in the architecture departments of Turkey, we may see that the effects of the Bauhaus understanding can still be felt in the current curricula, even though the main approaches are tried to be integrated into the new digital technologies.

During the COVID-19 pandemic, because education was held online, the use of new technologies in design representation appeared as a necessity to manage and facilitate online feedback procedures (Ibrahim et al., 2021). In the process, although students' skills in hands-on exercises were inhibited, their skills in using digital design tools were gradually fostered. Before the pandemic, students of architecture were generally used to adapting to digital technologies after the first year; however, with online education, they adapted to these technologies in advance in the first year, though they also had some adaptation problems in this process (Alnusairat et al., 2021; Akçay Kavakoğlu et al., 2021). Nevertheless, the early start of the said adaptation problems may also be considered as a situation that will relieve students the consecutive years from the burden of learning digital technologies (Özkar, 2007; Uysal & Topaloğlu, 2017).

However, there are also criticisms focusing on that, in the disciplines of design, digital tools cannot substitute physical ones by which students can develop their reflecting and crafting skills, be aware of what they design in detail, and test/check the product to discover the problems, as also mentioned by Richard Sennet (2008). To solve the conflict between the tendencies to use digital and physical tools in design education, we need to conduct more trials in curriculum structures to keep both techniques together and intertwine them symbiotically (for a trial, see Strand & Nielsen, 2018). In this scope, the current study attempts to propose a curriculum based on the use of digital and physical representation techniques in the first semester of basic design education in architecture on the basis of Halliday's (2004) metafunctions.

To answer the emerging needs in basic design studios by the pandemic and online education, the use of digital tools has been accelerated recently in architecture departments in Turkey, and in face-to-face education, too, students have begun to adapt to these tools in the first year. There is an immense number of studies trying to evaluate the integration of digital tools into design education (Gu et al., 2010; Junk & Matt, 2015; Strand & Nielsen, 2018), into architectural design education (Gross & Do, 1999; Achten, 2003; Al-Qawasmi, 2005; Bailey, 2005; Oxman, 2008; Özen Yavuz & Yıldırım, 2012a; Kara, 2015; Życzkowska & Urbanowicz, 2019) and into first-year design education in architecture (Caldwell & Woodward, 2012; Özen Yavuz & Yıldırım, 2012b; Uysal & Topaloğlu, 2017; Özgen et al., 2021). This final literary axis opens new ways to highlight, try, integrate, and evaluate digital tools in the basic design and helps the instructors structure curricula in an open-minded and innovative way.

The current study, therefore, attempted to propose a new curriculum based on the integration of Halliday's (2004) ideational, interpersonal, and (con)textual metafunctions into basic design learning. This structure was designed (con)textually using digital and physical representation techniques in

the first semester of the basic design curriculum in architecture through the face-to-face education system. At the end of the semester, we also conducted a survey with the students to learn their tendencies and awareness in using the proposed tools. Since the basic design education in Turkey generally follows the traces of the Bauhaus School—as we also had the same perspective in the curriculum we structured—our trial also bridges between the use of digital tools and the physical craft-oriented focus of the Bauhaus but mainly aims at linking the conceptual learning to one of the architectural practices to provide a more continuous basis for both basic design and architectural education. Hence, the integration of conventional physical techniques into digitalization to establish a (con)textual metafunction for the basic design language may provide us with an adequate ground to structure the metafunctional basic design learning/teaching model, which, when applied in face-to-face education, may also compensate for the lack of communicational tools by establishing different modes of communication at the heart of the system.

2. Basic design education, linguistic metafunctions, and digitalization

2.1. Background of basic design studios

Basic design studios in architecture education help students develop a strong foundation in the fundamental principles and skills required for successful architectural design. The architectural education landscape in Turkey is diverse, with schools adopting a range of curricular approaches. Some institutions prioritize building design and technology from the outset, while others experiment with innovative methods like incorporating theatrical performances or experience-based spatial design (Aytaç-Dural, 1999; Caner Yüksel & Dinç Uyaroğlu, 2021). However, the traditional Bauhaus approach remains a popular and prevalent model in many Turkish architecture schools (Çetinkaya, 2014; Makaklı & Özker, 2016). These studios are generally formed through the concept-, composition-, Gestalt-, and workshop-based understanding of the Bauhaus school, integrating design into techniques, and are taken in the first year through two semesters (Farivarsadri, 1998). Therefore, students are prepared for a more realistic realm of consecutive years by passing through conceptual training. The first semester of this year generally aims to teach the fundamental aspects of basic design comprising the elements (such as line, shape, plane, color, texture, and space) and principles of design (composition principles such as balance, contrast, rhythm, hierarchy, and unity, and the Gestalt principles such as figure and ground relationship, similarity, proximity, closure, and continuity), and volumetric and spatial comprehension (through spatial relationships and organizations by considering factors like scale, proportion, direction, and volume) (Acar, 2003). In the second semester, students mainly learn about architectural terminologies and concepts (such as function, circulation, materials, spatial program, site planning, and basic structural principles) and how to integrate this knowledge into the ones they learned in the first semester. On the other hand, the training in representation and visual communication skills (through drawing exercises, model making, and digital tools), and critical design thinking and problem-solving (with an emphasis on creativity, research, analysis, and iteration/revision for innovative solutions) continues over two semesters in the first year.

In this regard, basic design corresponds to a fundamental studio in the design curriculum of architecture education, and it has a very dynamic historical background (Salem & Dündar, 2020). Some aspects of this curriculum date back to the pre-20th century, while curriculum designs similar to the current ones are newer, emerging in the 1920s. We can find traces of training in architectural composition in the period coinciding with the pre-20th century; however, this education emphasized historical styles and (neo) classical proportions, and encouraged students to learn through copying and replicating the traditional forms with limited creativity. At the beginning of the 20th century, we may also recog-

nize a transitional period before reaching out to the rules of Modernism rejecting tradition. Howard Robertson's (1924) *The Principles of Architectural Composition* written in 1924 exemplifies the tendencies toward architectural design in this transitional period; thus, we can still feel the importance of the conventional composition principles such as unity, contrast in forms and masses, scale, and proportion in Robertson's (1924) prominent work, while also coming across the modern emphasis on function, and the relation between plan and elevation.

On the other hand, the emergence and dedication of 'Basic Design' courses in the architecture curriculum occurred through the inspiration of the Bauhaus school, founded by the architect Walter Gropius in Weimar, Germany, in 1919. The school aimed at combining design with industry, theory with practice, and arts with crafts. 'Art and Technology: A New Unity' (*Kunst und Technik: Eine neue Einheit*) as through the words by Gropius (Kaplan, 1995), this unifying model was conducted with a collaboration of an artist or form master teaching theory and a craftsman teaching technical processes with techniques through workshops (Salem & Dündar, 2020). By following the joint principles prevailing in both the arts, design, and architecture, the new integrative spirit of the Bauhaus had strong interdisciplinary bounds linking architecture and design education with the education of different visual art branches (O'Sullivan, 2012). Also, regarding this interdisciplinary context, some educational models formed the basis of the Bauhaus; however, it could be a prominent example by being classicized through the early- and mid-20th century (Cross, 1983). Two of the other leading schools contemporary to the Bauhaus were the French Ecole des Beaux-Arts and the Russian Vkhutemas; nevertheless, they differed from the Bauhaus in terms of practicality, the effectiveness of design, and reach to the masses (Oxman, 2001). Turning into a movement, Bauhaus emphasized a more holistic design approach, focusing on fundamental design principles and experimentation.

After the closure of the Bauhaus in 1933, the effects of the school continued in the education plans of architecture departments, even if some concepts have been transformed and reproduced to adapt the education plan to the changing conditions (Conant, 1965; Orr, 2021). The basic design studio, shaped by the Bauhaus approach, turned into a field of experiments on visual language, and its educational structure was dismantled and rebuilt with the exercises to feed the universal basic design language based on the Gestalt and composition principles through hands-on exercises (O'Sullivan, 2012). Though the integration of digital tools in this almost classical approach has not harmed the logic of the language, it has the potential to change the representation and expression methods permanently.

2.2. Systemic Functional Linguistics and design education

The approaches and studies to the cognitive phases of making design were widely influenced by the theory of Systemic Functional Linguistics (SFL) by Halliday (2004), who argues here about mainly two opposing metafunctions of language, ideational and interpersonal. Accordingly, the *ideational* (reflective) level refers to the reflection phase through which people concentrate on a more conceptual stage and try to communicate by themselves through concepts and ideas (Halliday, 2004). Besides, the ideational metafunction is composed of two sub-functions, the *experiential* and the *logical*: in the experiential function, we refer to the world of experience through the linguistic representations of participants, processes, and circumstances, while the logical function forms how we structure and organize propositions linguistically, and shows how we connect ideas and propositions to provide logical relationships between them (Halliday, 2004). In contrast, the *interpersonal* (active) level corresponds to a participatory phase through which people communicate with other persons (Halliday, 2004). This metafunction points out dialogues between speakers and listeners (writers

and readers, designers and clients, or students and instructors) and relates to how we create social interaction and establish relationships with other people linguistically (Halliday, 2004). Moreover, Halliday (2004) also highlights a final third function, the *textual*, which provides a joint base for the other two metafunctions but also stands apart from these acts. The textual metafunction does not deal with the stages of having experience, establishing logical relations, and social interaction. It concentrates on how language is organized to compose a cohesive and coherent text (Halliday, 2004); it has a structural basis and defines the *context*.

The existence of such a linguistics model can also be followed in design language; that is, the experiential phase of the ideational metafunction may correspond to how designers reflect on their experiences and observations while, for example, making design sketches to propose ideas. The reflections of a designer on an idea also have connections constructed in the logical phase within the design proposal to build a reasonable structure. Afterward, to convey the design ideas and proposal to others, designers need to establish strong and legible communication with others at the interpersonal level. Finally, on the textual level, the design context created or the project itself as a (con)text serves designers to show the structure of the design language that they produced. It refers to organizing architectural elements and parts to create a meaningful whole. Therefore, we may claim that Halliday's (2004) SFL works through the design language, as well, and builds the design process from the very preliminary and reflective stages of design to the interpersonal communications and the construction of the end product as a (con) text.

There are examples in the literature highlighting this connection between Halliday's (2004) SFL and design language (in digital or physical regards). In this framework, Andrew Dong (2007, p. 5) discusses whether 'language itself participates in the enactment of design' and denotes that 'Forms of semantics and grammatical structures of design text are lines of compositions through which these performative aspects enact design practice and actualize the designed work'. Referring to Halliday's (2004) *An Introduction to Functional Grammar* and Halliday's and Christian Matthiessen's (1999) *Construing Experience Through Meaning: A Language-Based Approach to Cognition*, Dong (2009) strongly underlines the possibility of integrating SFL and metafunctions of language into design by also examining the systems of *transitivity* (in the ideational level) and *appraisal* (through the interpersonal exchanges). In Dong's (2009) proposal, the transitivity works in 'material', 'mental', 'behavioral', 'relational', and 'existential' contexts—excluding the 'verbal' regard. The grammatical choices in the appraisal context of language, on the other hand, correspond to the expressions of 'evaluation', 'attitude', and 'emotion' through which an interpersonal communication can be staged (Dong, 2009). All these phases and contexts are observable in any of the design processes.

The importance of examining language systems by suggesting connections between linguistic systems/grammars and visual/verbal representations of design process is legible through literature, however, its examination regarding design studios is rarely undertaken in academic studies. Thus, SFL may also be applied in the design education process in architecture schools. A trial in this regard uses the SFL's metafunctions to structure a 3rd-grade architecture studio curriculum based on the intertwined relationships between the ideational conceptual (visual) sketches and interpersonal (verbal) exchanges of design ideas through a continuous review system covering the whole term (Çıkış & Ek, 2010). Stefano Moroni and Giuseppe Lorini (2021) examine drawings as a linguistic tool by analyzing the (meta)functional stages of this communication model by referring to Halliday's (1973) *Explorations in the Functions of Language*. In a similar perspective, Chahid Akoury (2020) also refers to Halliday's (2004) metafunctions and highlights the importance of drawing as a language to be utilized in introductory design stu-

dios to develop students' perceptual and expressional abilities in creative and critical design thinking and communicating. The works show that the bonds between the linguistic/grammatical systems and visual/verbal representations are strong, and these systems can be followed functionally in the education of design in architecture. Therefore, we may apply these systems in functional regard both in in-person and online education systems and try to establish new curricula adapting physical and digital technologies by providing a hybrid context concerning techniques.

2.3. Digitalization as the (con)textual metafunction of basic design language

Today, digitalization in design curricula is an indispensable part of the education system. Therefore, fate was introduced using digital tools in design, and students were required to learn the tools and improve their skills in using digital technologies to make them express their ideas more efficiently (Oxman, 2008). Here, the problem was about the effects and areas in which the digital tools were applied: if these tools were used in the brainstorming or conceptual stage of the design process, it was criticized by the scholars believing in the practical and reflective relationship between the head/mind and the hand of the designer (Sennet, 2008; Kara, 2015; Vetlesen, 2015), and the ones highlighting the inconvenience to trace back the different design stages produced in the digital environments because most of them are not saved by the students (Al-Qawasmi, 2005). On the other hand, if the digital tools are utilized only during the representation phase, it was positively interpreted (Özen Yavuz & Yıldırım, 2012a), or it was stated that there is not any considerable difference between the two thinking/producing modes (Brandon & McLain-Kark, 2001). However, there are also views supporting the use of digital tools in the design thinking process to substitute the physical/manual procedures—if the project is open to be worked, for example, in algorithmic or parametric design languages (Gross, 1999; Bailey, 2005; Gu et al., 2010; Özen Yavuz & Yıldırım, 2012b; Oxman, 2017a; Oxman, 2017c; Strand & Nielsen, 2018).

Furthermore, the rise of digital technologies did not begin during the pandemic; it has a longer story connected to the emergence of the need for a theoretical search as a frame for the accelerating use of digital tools in the design process (Oxman, 2006). Although the subject of the design process with digital/computational tools in practical respect is controversial in the literature, there are potent attempts to compensate for the theoretical lack of using and adapting computational tools and digital media into architectural design processes. In this regard, a crucial discussion about computational tools was undertaken by Rivka Oxman (2017a) in her article on *parametric design thinking* and its impact on the design process. According to her, parametric design tools utilizing algorithms and user-defined rules influence design thinking (Oxman, 2017a). At this point, we may also claim that design thinking has always been a parametric process in itself; the only difference is that in traditional regard, the aim has been to produce a final form or image in the end, while in parametric design thinking, the aim is the design process itself. Here, Oxman (2017b) also takes attention to this critical topic about the relationships between the image and computational design process by stating that instead of *processing the image*, that is, the traditional method treating the image as a static end-product utilized for analysis and representation in the design process, *imaging the process* can be the answer to follow a dynamic design evolution through computational design tools that generate the image directly from the design process itself and convert it into a dynamic output reflecting the design's development.

Regarding controversies in the practice-based discussions, on the other hand, some of the researchers (Al-Qawasmi, 2005) stated that it is compulsory to integrate digital technology into architectural education in the early stages, but some of them are on the opposite side (Kara, 2015; Lawson, 2002; Hertzberger, 2005; Sennet,

2008; Pallasmaa, 2011). Juhani Pallasmaa (2011) stated that digital tools cannot replace traditional tools because of the cooperation of hand, tool, and mind. Hand and mind interaction is a common and essential research subject, as Pallasmaa (2011) and Herman Hertzberger (2005) analyzed this interaction and its effect on the design process. Bryan Lawson (2002) stated that when the creativity of digital tools is analyzed for students, there are many impressive and strong presentations with poor design. He compared computers and humans in some tasks, concluding that computers are quicker and more reliable in calculations and remembering (Lawson, 2002). However, the human mind is better at recognition and interpretation, which protects designers from poor designs, as Hertzberger (2005) described in his speech as 'fake' rather than 'real' creativity. Amjed M. Ali and Hawar Himdad's (2015) research concluded that, in architectural education, the design process is more important than the end product, and students should take information from many different fields in the process. Strong dependence on digital tools has negative indicators on the design process. Also, there is a relationship between drawing capacity and creativity. However, the balance between digital and conventional physical tools should be kept together for the students' future experiences.

Glenda Amayo Caldwell and Sarah Woodward (2012) claimed that the advantage of using digital tools in the early stages of design is that students gain confidence by learning CAD software. Still, digital tools are not sufficient in the creative idea-creation stage. Levent Kara (2015) noted many advantages of using digital tools in the design process, such as enabling the design of structural and formal geometries, making the design and construction process clear, and preparing the students for future needs. However, deciding where and how to implement these tools in the curricula is important because it makes a real difference. He states that '[...] these tools still require an internalized knowledge of seeing, thinking, and making space which cannot be cultivated through digital environment alone' (Kara, 2015). Students who used digital tools in the design process in later years have the advantage of interchanging conventional and digital tools and dealing with architectural complexities.

On the contrary, Jamal Al-Qawasmi (2005) stated that digital tools allow students to work from various views at any point in time. In the conventional design process, students make technical drawings to represent their designs at an interpersonal level. However, they explore and articulate the design from 3D models in the digital process. The physical models used by the students are replaced by virtual 3D models with the use of digital tools, and that change makes the process more responsive, which is another advantage of using digital tools. Changes in the solids/voids, color, and texture can be made immediately, and the process becomes interactive and interpersonal. Using 3D design tools, students can easily immerse themselves in their design and simulate the environment and user. The digital design process can be, therefore, described as reflective (ideational), interactive (interpersonal), integrative, and immersive (Al-Qawasmi, 2005).

Even though there is controversial research about using only digital tools in the early stages of the design process, the idea of including digital tools in the curricula is compromised by many researchers. Without leaving the advantages of the conventional physical learning tools and environment, utilizing digital problem-solving and representation in design may also lead instructors to integrate basic design and architectural education easily. Thus, in the sense of Halliday (2004), digitalization integrated into conventional physical design representation media may serve as a metafunction, which refers to a kind of (con)textual plane through which the ideational/reflective/passive, transitional and interpersonal/(inter)active levels can meet on a continuous and stable ground, in the language of the basic design.

3. A trial for a new curriculum model in basic design language

Basic design studios in Turkey usually cover the first academic year. Therefore, these studios play a vital role in the early periods when a format is introduced to first-year students in professional education. The current study was undertaken in the first semester of the Basic Design in Architecture I studio in the Department of Architecture at Yaşar University. The basic design education covers the first year (two semesters), and the first semester is reserved for teaching the fundamental principles of design following a curriculum having the Gestalt, composition, and organization principles at the focus mainly to feed the conceptualization in basic design language. After returning to face-to-face education in the fall semester of the 2021-2022 academic year and witnessing the advantages of digital tools during online education in the previous year, we tried to integrate digital tools into the design process in the new education period. Accordingly, the curriculum was re-structured to balance the hands-on exercises with those digitally produced to increase students' brainstorming abilities and communication potentials and, thus, to support the ideational (conceptual) and interpersonal (communicative) metafunctions of basic design language. In this way, we aimed to provide preliminary knowledge through a training model allowing the use of digital tools and physical representation techniques together in the design processes to design a smooth transition from the basic design studio of the first year with a relatively abstract and conceptual basis to the consecutive years of architectural education having a more concrete basis.

In the search for a new model, on the other hand, when we translate the metafunctions of language, as defined by Halliday (2004), into the curriculum of basic design, we have a base to bridge the gap between the abstract and concrete phases. Accordingly, we designed the curriculum in four intertwined modules. The first one emphasized the ideational level by encouraging the students to reflect upon the basic principles of design, and in this stage, observations, sketches, analyses, and diagrams referred to the fundamental representation techniques. The second module was transitional, bringing together conceptual thoughts and digital and physical craft-based practices by supporting the students in expressing their designs in the concrete stages; thus, conceptual sketches and technical drawings were utilized in the transitional phase. Thirdly, through the interpersonal level, the requirements covered design descriptions and brief narrations about the projects to support the technical drawings and models and to facilitate communication. In this structure, the textual stage of Halliday (2004), fourthly, was translated into a drawing- and modeling/model-based language of basic design to connect all the other three stages in the same context—therefore, we called it (con)textual level, which is open to the integration of the conventional representation techniques with the digitalized ones.

54 students and 5 instructors participated in this exercise-based process. Throughout the term, by utilizing the metafunctions defined in SFL (Halliday, 2004; Halliday & Matthiessen, 1999), the students participated in the exercise sections beginning with the ideational phase, evolving through the transitional one, and finalizing with the interpersonal phase. This tripartite set has been repeated through four cycles during the term (Table 1). Moreover, when the exercises defined new content and changed the previous context, we designed the assignments to inform the students about these changes in the context. Therefore, (con)textual structure of the exercise language is accompanied by the ideational, transitional, or interpersonal phases. In the ideational parts of the exercises, we mentioned in the related written assignments that they need to reflect on the design problem, describe it through writing, and make sketches of brainstorming for probable solutions in digital and/or physical realms. When we required them to make design representations through new techniques (such as collages, poster designs, or digital models), these ideational sketches/writings developed

through newly introduced (con)textual phases—such as the ones labeled 'ideational + (con)textual' in Table 1.

Moreover, some exercises provided possibilities for a transition between the ideational and interpersonal phases of the design assignment. In the transitional exercises, we noted in the written assignments that the students need to transfer their reflections, sketches, and representations to a level requiring a stronger communicative ability covering the technical drawings with analytical and informative details about the measurements, sizes, types, colors, and materials. They could work in digital and/or physical regards. Therefore, while trying to translate/transpose the preliminary designs into a more concrete stage, the students could establish a design language that has the potential for interpersonal communication. Again, when we asked them to introduce a new representation tool for this transpositional process, we double-coded this level of exercise as 'transitional + (con)textual', as also demonstrated in Table 1.

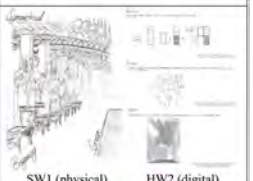
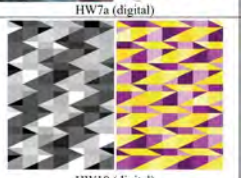
In the interpersonal phase, the students received the message through the written assignments that they needed to complete their designs by finalizing the representations with all details and analytical expressions to ease interpersonal communication. We also required them to convey their ideas verbally in written and oral forms to accompany their detailed drawings. In these phases, they were also allowed to utilize digital and/or physical tools to facilitate conveying and exchanging design ideas. Although it occurred only two times, interpersonal phases could overlap the (con)textual ones, as well—as marked 'interpersonal + (con)textual' in Table 1—if we required them to make the final representations of their designs in the design contexts that they learned recently. In these cases, they utilized these new representation contexts/techniques only to ease the communicative level about their design ideas and to broaden the understanding ability of the other people about their designs—which means that they did not use these contexts/techniques in the ideational or transitional phases.

Therefore, the (con)textual definitions in the proposed model always accompanied the other metafunctions and metafunctional relations. Moreover, these (con)textual definitions construct the body of the assignments composed of our curriculum base, aiming to connect digital and physical tools. Within this scope, the structure of the semester with the assignment contents, design-tool definitions (digital/physical), and representation preferences (digital/physical) of the submissions are classified regarding Halliday's (2004) metafunctions, as given in Table 1.

Each exercise set included all ideational, transitional, and interpersonal levels of design, and some exercises were designed as the rule teachers introducing the students to some specific research and design methods and representation techniques; hence, we called them the (con)textual, in Table 1, to refer to that a change in the context/technique was introduced with the related assignment. The studio works covered the daily exercises the students performed during the studio hours, and the homework assignments were the exercises studied after and before the studio classes. The works supporting the ideational function comprised the sub-assignments with a lower percentage (20%) and were graded either over four points or with plus (+) and minus (-) according to the content and duration of the design. Aiming at facilitating interpersonal communication, there were also exercises graded over 100 points, and they corresponded to the primary assignments (Set1, Set2, and Set3), midterm, and final grades with a higher percentage (80% in total) in the term grade.

As seen in Table 1, the assignment structure of the studio was organized in a balanced way regarding the ideational, transitional, and interpersonal metafunctions and frequency of using the digital and physical design tools in the design thinking and representing stages, as the (con)textual metafunction. As the two poles, the assignments of the ideational phase majorly covered the first part of the semester, while the ones of the interpersonal phase were

Table 1. *The distribution of the content, design-tool definitions, and representation preferences of the submissions in the assignment structure and works with the highest grades classified regarding the design tools and metafunctions.*

Week	Meta-functions	Title (studio work/homework) and content	Design tool/ Number of Submissions				Student works with the highest grades
			Digital		Physical		
1	Ideational + (con)textual	SW1: Observation by sketching		0	•	42	 SW1 (physical) HW2 (digital)
		HW1: Observation, analysis, research	•	41	•	45	
		HW2: Analysis, research	•	44		0	
2	Transitional	SW2: Transformation		0	•	45	 HW2 (mixed)
		HW3: Analysis, transformation, synthesis	•	57	•	26	
	Interpersonal + (con)textual	SW3: Analysis, visual narration	•	44		0	 HW4a (physical)
	Interpersonal	HW4a/HW4b: Synthesis, analysis, visual narration	•	32	•	13	 HW4b (digital)
			•	44		0	
3		SW4: Analysis, visual narration	•	47		0	 HW6 (digital)
	Ideational + (con)textual	HW5/SW5: Abstraction	•	47		0	
			•	45		0	
	Ideational	HW6: Abstraction, decomposition	•	47		0	
4	Ideational + (con)textual	SW6: 2D module composition		0	•	43	 HW7a (digital)
	Ideational	HW7a/b: Decomposition, 2D module composition	•	85	•	19	
		SW7: 2D module composition		0	•	46	
	Transitional + (con)textual	HW8/SW8: Pattern design	•	48		0	
				0	•	48	
5	Transitional	HW9/SW9: Achromatic pattern design	•	48		0	 HW10 (digital)
			•	48		0	
		HW10: Achromatic and chromatic pattern design	•	47		0	
6	Interpersonal	SW10/Midterm: Achromatic and chromatic pattern design and analysis with descriptions	•	47		0	 Midterm (digital)
			•	50		0	
	Ideational + (con)textual	HW11: Composition principles, research	•	46		0	
7	Transitional	SW11: 2D composition		0	•	39	 HW13 (digital & physical)
		HW12/SW12: Achromatic 2D composition		0	•	40	
				0	•	40	
		HW13/HW14: Achromatic and chromatic 2D composition		0	•	26	
			•	36	•	36	

mainly given in the second half of the semester. Accordingly, 18 assignments were arranged to encourage the students to reflect upon the design problems and make sketches, collages, and visual narrations to figure out the potential design ideas at the conceptual level. 11 assignments were studied in the digital context, and 12 covered the physical representation context for the derivation of design ideas, while in 6 assignments, the students were required to use both digital and physical contexts. 10 assignments, on the other hand, were composed of the integration of ideational and (con)textual metafunctions. Thus, we introduced the students to different representation contexts/techniques such as observation by sketching, analysis, research, abstraction, digital design, and 2D and 3D composition principles.

16 assignments referred to the transitional function with the representation manners to translate the ideas derived in the ideational phase to the interpersonal phase. 10 of these transitional assignments were designed to require the submissions in digital respect, 12 of them corresponded to the representations produced in the physical context, and 6 entailed both digital and physical works. 3 exercises required the introduction of the (con) textual metafunction intertwined with the transitional one, through which the students learned how to produce and translate a pattern in 2D and composition in 2D and 3D environments.

The interpersonal phase covered 20 assignments and was designed to advance the representation techniques of the students to communicate with others through digital drawings, modeling, and physical models. 18 were worked in the digital context, 13 assignments required physical submissions, and 10 included digital and physical submissions. Again, only 3 assignments were designed to cover both the interpersonal and (con)textual metafunctions by which the students could use the techniques of analysis, visual narration, and design of a relief composition with the tactile texture to represent their design ideas for providing communication interpersonally. In this respect, as the rule-definer, the

(con)textual metafunction, supported by the ideational, transitional, and interpersonal phases, was composed of physical and digital languages introduced as integrated into 9 assignments.

In total respect, the students were required to make only physical submissions in 15 assignments, digital or physical (optional) submissions in one assignment, submissions by the mixed technique (collage via digital and physical tools) in two assignments, only digital submissions in 16 assignments, and submissions in both types of representation techniques (digital and physical) in 6 assignments. Therefore, the assignments included 37 physical options/requirements, while 40 submissions had the option/requirement of using digital tools in the design process. However, the students mainly preferred to use digital tools, as seen in the distribution of the total number of submission types: 1885 submissions out of 3271 (approximately 57,62%) were prepared and represented in the digital environment.

The semester started with the ideational phase and physically applied design techniques (sketching) and continued with collage as a mixed technique open to the use of both hand sketches as a base and putting marks, making analyses, and superimposing texts or images on these sketches in the digital environment by covering the ideational, transitional, interpersonal, and (con)textual phases. Toward the end of the semester, all drawings (orthographic projections) and perspective representations (models) were produced by 2D and 3D digital design programs, and all these submissions were accompanied by a physical model to provide stronger communication at the interpersonal level. Except for the first week of the ideational level, when the students did not know how to use the digital programs, they preferred to design only in the digital environment (as seen in HW1 in Table 1), even if, in the assignment, physical submission was also required. And, if the type of the design tool was optional in the assignment, the students, again, mostly preferred to use the digital (2D and/or 3D) tools (as seen in HW3, HW4a, HW7a/b, SW23, SW24, and SW25 in

Table 1. *The distribution of the content, design-tool definitions, and representation preferences of the submissions in the assignment structure and works with the highest grades classified regarding the design tools and metafunctions (continued).*

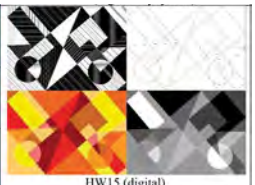
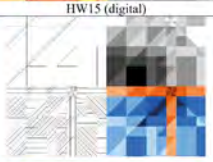
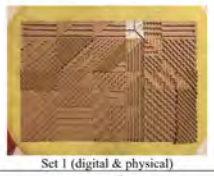
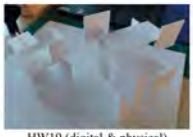
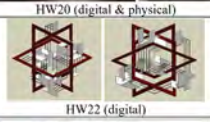
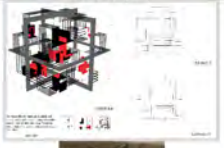
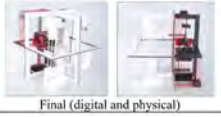
8	Interpersonal	SW13: Chromatic 2D composition		0	•	37	 HW15 (digital)
		SW14: Achromatic and chromatic 2D composition	•	42		0	
		HW15: Achromatic and chromatic, visually textured 2D composition	•	45		0	
9	Interpersonal + (con)textual	SW15/SW16: Relief composition with tactile texture		0	•	23	
				0	•	44	
	Interpersonal	HW16/Set1: Achromatic and chromatic, visually textured 2D composition and relief composition with tactile texture	•	44	•	44	
			•	44	•	44	 Set 1 (digital & physical)
	Ideational + (con)textual	HW17: 3D digital design programs, research		0		0	
10		SW17/HW18/SW18: 3D module composition		0	•	44	
				0	•	45	
			•	42	•	42	
		HW19: 3D module composition and 2D frame design	•	86	•	43	 HW19 (digital & physical)
11	Ideational	SW19/HW20: 3D module composition, 2D frame design, 3D volume design	•	88	•	44	
			•	76	•	76	
	Transitional	SW20: 3D composition (with planer and linear elements)	•	37	•	37	
		HW21/SW21/HW22: 3D nodal composition	•	41	•	41	 HW20 (digital & physical)
			•	45	•	45	
			•	40	•	40	
12	Transitional + (con)textual	SW22: 3D composition, 2D representation of the composition	•	32	•	32	 HW22 (digital)
13	Interpersonal	HW23/SW23/HW24/Set2/SW24: Achromatic and chromatic 3D composition, 2D representation of the composition	•	39	•	39	
			•	37	•	15	
			•	35	•	35	
			•	43	•	43	 Set 2 (digital and physical)
			•	33	•	12	
14		SW25/Final: Achromatic, chromatic, visually- and tactile-textured 3D composition, 2D representation of the composition	•	37	•	5	 3D NODAL COMPOSITION
			•	48	•	48	
		Set3: Archive of the term (portfolio)	•	48		0	 Final (digital and physical)
Total number of submissions (3271):				1885		1386	

Table 2. *The survey questions with the distribution of answers.*

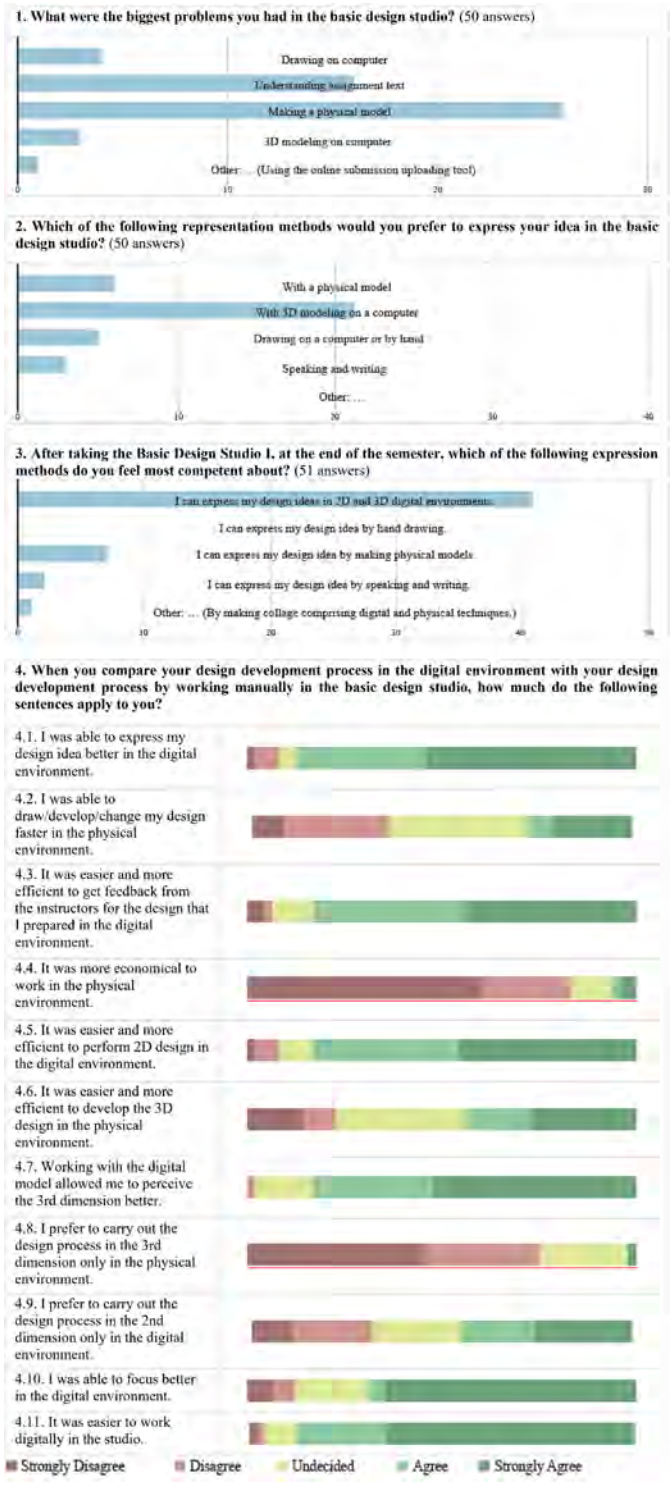


Table 1), and the results even, for the works with the highest grades, were more successful in the digital submissions in terms of the design qualities at the interpersonal level, which can be seen in Table 1.

Observing the students' tendencies and results, we decided to survey them to understand their preferences, abilities, and thoughts about using different design and representation techniques in the exercises through all metafunctions. The survey comprised 14 questions on the multiple choice and Likert scale (with 5 options), and we tried to comprehend their preferences regarding utilizing physical and digital tools in their design works. Regarding the students' preferences about using digital or physical design tools in the exercises to develop, translate, and express their design ideas, we can see that most of the answers are on the side of using digital design tools (Table 2).

In the answers to the first question, we may see that the problem of 'making a physical model' corresponds to the highest score in ideational and interpersonal regard. Because craftsmanship techniques necessitate a level of skill, knowledge, and patience to learn and apply, the students could not quickly adapt to use them at the ideational stage at the beginning of the semester. However, even after they learned those techniques, they continued to prefer to utilize digital design and representation techniques through the interpersonal phase, which may be explained by the dispositions of their generation, which is much more familiar with information and communications technologies. Being accustomed to the fast-flowing world on internet pages, showing patience while making models, and improving their skills could be more difficult. The score of this answer was followed by the score of the (con)textual problem related to 'understanding assignment text', which can be combined with the fact that the education language of the Department is English.

In the second question, 72% chose to express their design ideas interpersonally with 3D modeling on a computer when the students were asked to prefer a representation method. The other three options, which have similar percentages much less than the favored answer, indicate individual differences rather than a generalizable outcome. If the options are to be compared to each other, we see that while working in 3D through all metafunctions, the digital environment is preferred by the students rather than making a physi-

cal model, which fits with the answers and evaluation of the first question. The students choose to work through modeling in 3D rather than drawing to express their ideas ideationally and interpersonally, even in the digital environment. We observe that with 3D modeling on the computer, students can develop faster and more easily modify a design idea with ideational respect. Expression of the idea by speaking or writing is not preferred interpersonally by the students, which is partly understandable as the outcome of the design process would be a physical one, either developed digitally or manually. However, we believe that the change in the preferred communication skills of the generation, the students being more confident and capable through digital tools at transitional and interpersonal levels, rather than speaking or writing, is also an essential reason for this.

In answer to the third question, 80% of the students chose 2D and 3D digital environments as their most competent method to express their design ideas interpersonally, while 14% chose to make physical models, 6% chose speaking, writing, or collage, and none of them decided hand drawing. Considering the balanced usage of the digital and physical design tools in the assignment structure of the studio and that it was the first semester of the students' design education, meaning, in general, every method was new, we can say that the students can learn ([con]textually) and develop (ideationally) digital-tool usage skills much faster and easier than manual working skills. Again, this can be explained by the general feature of the generation, the students being born into the digital age, using different digital tools in every stage of their lives for communication, education, entertainment, and even for socializing; the digital environment is what they are accustomed to, rather than manual working environments.

The fourth question had 11 sub-sentences to be answered on a Likert scale of 5 (Table 2). While the first three questions of the survey asked for a preference from the students, the fourth question asked for a comparison between working in the digital environment and working physically, regarding 11 sentences that each addressed different aspects of the design development process at the ideational and transitional levels. In the answers to the first sentence, most students agreed that they could express their design ideas better in the digital environment than working physically at the interpersonal level. The answers to the second sentence, having an average point of 3.04, corresponding to undecided, show no clear distinction for the students between the digital and the manual working environments when the timing of the work process is considered. The students' answers being almost equally distributed between the sides of disagreeing, undecided, and agreeing indicates that the students are not well acquainted with the timing of the physical/manual process in design. We believe that if the sentence questioned the digital environment, the answers would be closer to the agreeing level, considering the answers to the first and eleventh sentences favor the digital environment.

According to the third, fourth, and eleventh sentences, at the ideational level, most students favor the digital environment in the design development process. Furthermore, they believe that, in interpersonal respect, it was more accessible and more efficient to get feedback from the instructors when the design was prepared in the digital environment, and in terms of economy, they clearly state that it was more economical to work in the digital environment. Also, working in the studio with digital tools was easier for the students. Because the design could be shown to the instructors by the computers, there was no need to take printouts or buy modeling materials, which made the digital environment more economical for the students. With the advantages of digital tools, the students could reflect and modify their design and create different options faster ideationally, even during the (interpersonal) critique time, and could discuss the results simultaneously with the instructors, which made the critique session easier and more efficient for the students. These advantages also made it easier to work digitally in the studio,

where time management is crucial for submitting the studio works, and the physical conditions of the studios are limited to working physically.

When the students were asked about their level of ideational focus during the working process, although the answers were on the side of agreeing for the digital environment with an average point of 3.96, still one-third of the students either disagreed or were undecided about working in digital environments when it came to the focusing issue. We believe this is an important outcome to show that working physically can increase the ideational focus during the design development process.

The sentences from five to nine were prepared to compare working in the digital environment and manually about design development in 2D and 3D at both ideational and transitional levels. A significant difference in the answers between 2D and 3D in terms of working digitally or manually could not be seen, but while the students' answers indicate that it was easier and more efficient to work digitally in 2D, for 3D, the distinction between digital and physical environments is not that clear. The answers are distributed among disagreeing, undecided, and agreeing sides, which shows that the students are unsure about the subject. The way the sentences were structured could have affected the answers given by the students. When the sentence was formed asking about the digital environment, generally, the agreeing level was very high, but when the physical environment was asked, the students were closer to the undecided level. The reason may be that as the students were not accustomed to working physically throughout their lives, they do not have enough experience and knowledge on how the physical working process can come out in terms of quality and timing. As the survey was done in the first semester of their design education, they were still learning the contexts.

Regarding the ideational perception of 3D, most students agree that it is better achieved through working in digital environments. But when it comes to preferring one environment to work in either 2D or 3D, the students want to work both digitally and manually through all metafunctional levels, showing no clear preference in between. They clearly state that they do not want to work only physically in the design development process at the ideational level.

As a general evaluation, the students prefer to work in the digital environment during the design development process at the ideational level. It is easier, more efficient, faster, and more economical for them to work in the digital environment, especially at the interpersonal level. However, they are not against working in the physical environment and favor digital and physical work through the design development, translation, and communication processes.

4. Conclusion

The COVID-19 pandemic that the world has gone through has caused some inquiries. As a result, as in every field, architectural education has several transformations and adaptations. With the start of distance education, there were arguable positive and negative consequences in basic design education (Grover & Wright, 2023). Acceleration and adaptation of digital tools can be counted as an outcome of this pre- and post-pandemic situation. In the first year, students are required to learn and improve their digital skills. However, the problem occurs when using or adapting digital tools in the existing curriculum, especially in the concept development process of the ideational phase and the communication through the representation tools in the interpersonal phase. Using digital technology as the (con)textual metafunction, in Halliday's (2004) sense, in architectural education at the beginning of the process is necessary, therefore, in terms of rapidness and consistency among outcomes of design while conventional tools cannot be substituted with digital ones because of the combination and coordination between hand, tool, and mind/head as another multi-dimensional context.

Therefore, restarting face-to-face education in the 2021-2022 academic year, with the positive outcomes of using digital tools in distance education

in the previous year, as the instructors of basic design studio, we tried to integrate digital tools into the design process and re-structure the curriculum with a pattern composed of the metafunctions of design, to balance hands-on exercises with the digital ones. To see the results of our attempts, we conducted a survey with the basic design students at the end of the semester. This study, therefore, also tries to build insight into students' tendencies to use digital tools through all metafunctions of basic design language. By following an education pattern covering the ideational, transitional, interpersonal, and (con)textual phases alternately with a balance and with the use of both physical and digital tools in basic design, we believe that students may feel more comfortable in the consecutive years to derive, develop, and express their design ideas through all the mentioned phases and by using each type of tools.

Thus, according to the survey results, the basic design students are comfortable with integrating digital tools into the process in terms of focusing on design ideationally, explaining, and representing the design idea interpersonally, as well as they are quite satisfied studying with digital tools in the physical/face-to-face environment. Therefore, the level of responsiveness to digital tools was relatively high among the students because they were able to make changes in color, texture, organization, and shape/form quite quickly at the ideational phase and see the results immediately, which made the process more interactive and facilitated the interpersonal communication.

On the other hand, although they could work with 3D models digitally, they had difficulty understanding 3-dimensionalities and spatial quality in ideational respect. This critical outcome shows that being able to do 3D modeling in a digital environment may not mean understanding all aspects of the 3rd dimension and the phenomenon of space. Thus, we can observe that it may have been partially tricky for students who preferred to use digital tools to feel and understand space and spatiality. As Sennet (2008, p. 274) mentioned, 'The more neuronal stimulation, transmission, and feedback occurs throughout the global geography of the brain, the more we think and feel'. Therefore, it is essential to consider that communication between the head/mind and the hand is the most crucial step towards comprehending space and volume, and it significantly improves the ability to think. However, the survey findings also denote that the students were quite undecided about developing their projects much faster in physical environments at the ideational stage. This may show they were uncomfortable using physical tools such as model making or any other tool requiring craftsmanship. Besides, since students were not used to working physically, they could have difficulty with physical representations, such as making collages or hand-drawing exercises, especially during the ideational phase.

In terms of knowledge, skills, and attitudes, after applying the proposed curriculum, we could observe progress in the students' abilities to design (through the ideational and physical exercises) and communicate (through the interpersonal and both digital and physical exercises). Without dismissing any representation environment (physical or digital), they could be more conscious about their designs' content and develop their skills of comparison, evaluation, and criticism. They could develop a comparative sense related to the contents of the assignments, which may lead to higher success depending on the environment in which they are studied. Before applying this curriculum, in the previous years, although the students could learn the basics of design, they generally had trouble conveying their ideas through drawings, written, and oral regards. With the proposed curriculum, however, the students could also improve their verbal expression abilities via the iterations of the drawn exercises aiming for interpersonal communication.

Considering all findings for a balanced curriculum regarding using physical and digital tools through all metafunctional levels, it may be claimed that the students are undecided about physical design tools while they are quite familiar and comfortable with digital ones. Therefore, in basic

design education, an adaptation of digital tools with conventional ones at the beginning of the design process (at the ideational level), such as in the subject of formal geometries, composition principles, design elements, and organizations, can have advantages for the future experiences of students. Further studies can be conducted to iterate this survey in the upcoming years to see the effects of digitalization on conventional architectural design education. Making adaptations in conventional curricula may pave the way for opening new ways in the old territories to set a balance between the physical and digital tools as well as between the tools and the minds of future designers.

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An approach to AI-supported learning in architectural education: Case of speculative space design

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Abstract
The study discusses integrating text-to-image artificial intelligence (AI) tools into the architectural studio. If the integration of AI is realized through narrative production, which is a combination of written and visual media, the student's interaction with the tools can be strengthened. This approach was tested through a workshop called "AI-Supported Speculative Space Production Workshop" conducted by the authors of the article as a case study. The workshop included 12 participants and lasted for 10 days. The expected output at the end of the workshop was a storyboard consisting of sequences that narrate and visualize the designed space. The data of the case study was collected through observation, diaries written by the students and submission of all productions in the process. The case study process was evaluated and presented according to the reflectivity between the participants' productions in the design process by using the visual analysis method. In addition, the outputs of the case study were assessed by design experts according to three criteria that are related to the research, sketches, the narrative, and the integration of them. It was observed that especially the students who used the AI tool in relation to other representations in the design process achieved more successful results. In this way, inferences were made about how text-to-image AI tools can be integrated into the architectural design studio process while understanding their limitations and potential. These approaches are expected to contribute to the effective utilization of AI in the studio.

Keywords
Artificial intelligence, Design education, Reflectiveness, Speculative spaces, Visual analysis.

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1. Introduction

Over the centuries, architects have created impressive works of architectural imagination through the design of imaginary, unbuilt, conceptual, or radical spaces, using their creative abilities to explore new spatial or philosophical possibilities (Spiller, 2008). Speculative narratives provide a conceptual space for architecture students to develop new discourses and question reality, allowing them to reflect on possible futures, create technological visions and fictional worlds, and question existing assumptions and systems (Uyan Dur, 2021). Architects can create speculative productions in the form of polemical drawings, models (real or virtual), or texts about buildings and cities (Spiller, 2008). With recent technological developments, the use of generative artificial intelligence (AI) for this purpose has started to be explored by architects and designers (Blythe, 2023; Malakuczi et al., 2024; Sağlam & Çelik, 2023). This study discusses integrating text-to-image AI tools into the architectural education curriculum through the production of speculative spaces. Thus, alternative ways of thinking are proposed to explore new horizons in architecture using AI tools. The questions of how these tools can be used for this purpose and what benefits they can provide are attempted to be answered within the scope of the article.

Just as digital architecture and computational design theory require us to reconsider architectural theory and methodology (Kolarevic, 2000; Oxman, 2006; Terzidis, 2006), integrating AI into the architectural design process has made it necessary to work on new strategies in architectural research. Like computational design tools, which have changed traditional design approaches by enabling the designer to explore various possibilities (Terzidis, 2006), generative AI tools can support the design process in exploring possibilities. The meaning of creativity in architecture is also changing as computational design technologies such as digital tools, information and communication technologies (ICT), and AI in a broad sense develop (Akcay Kavakoglu et al., 2022) and it has become necessary to make this inquiry through empirical studies. This study aims to contribute to this questioning environment by focusing on the text-to-image generative AI model, which is a deep learning model.

It is observed that the studies on the use of text-to-image-based GAI (Generative Artificial Intelligence) or AI Image Generators in the architecture studio in the literature mostly focus on visual production (Çiçek et al., 2023; Paananen et al., 2023; Tong et al., 2023). However, the design process is influenced and strengthened by many different types of sources (i.e., written, verbal, and visual) (Goldschmidt & Sever, 2011). In the use of text-to-image AI models, the written text becomes more important as it constitutes the input. Therefore, it is important to handle written and visual data together in the integration of AI in the studio. In this direction, using different media together by establishing a narrative can be a good way to construct the interaction of AI and the design student. In the direction of this hypothesis, a workshop titled 'AI-supported speculative space production' is taken as a case study. The workshop explores possible alternatives through various utopia-dystopia narratives while considering daily life and the human scale. The workshop was organized with a total of 12 participants and two facilitators and lasted 10 days. The participants of the workshop were mostly first-year to second-year architecture students.

In architecture, whether professionally or in education, designers need to externalize their designs to develop their own thoughts and communicate with others. Schön (1983) conceptualizes the design process as a reflective and communicative interaction with the materials and artifacts of the design situation. At the point where the designer externalizes his/her thoughts, his/her production and interaction with visual media play an important role in the design process (Schön & Wiggins, 1992). According to Schön, design problems are actively set or 'framed' by designers, who make 'moves' by using external design representations. Similarly, Goldschmidt (2014) argues that designers continuously cycle through the phases, refining their ideas and solutions based on reflection and feedback (Goldschmidt, 2014). Recent advancements

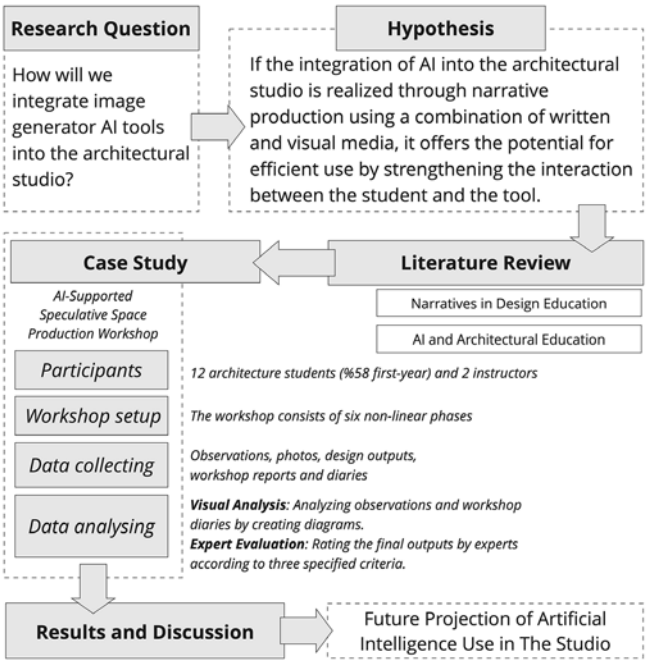

Figure 1. *The framework of the study.*

in AI tools that use natural language models as input have made it possible to create detailed and realistic representations alongside traditional methods such as sketching, model-making, and collages (Paananen et al., 2023). Establishing a reflective relationship with the production of text-to-image AI can feed the process of externalization in the design process. In this context, the case study process was evaluated and presented according to the reflectivity between the participants' productions in the design process by using the visual analysis method. In addition, the outputs of the case study were assessed by 8 design experts according to three criteria of a successful speculative narrative. The success cases defined by the experts and the design process they went through are discussed together with the scenarios of using AI tools. Figure 1 shows the framework of the study.

First, the study explores narratives in architectural design and the current uses of text-to-image AI tools in the field of architectural design through a literature review. Subsequently, the "artificial intelligence supported speculative space production workshop" is explained along with its method and is evaluated. The results of the case study are discussed, and conclusions are drawn. In this context, the study systematically presents the potentials and limitations of AI in the context of architectural design and provides recommendations to studio instructors.

2. Literature review

A literature review has been conducted under two main headings to explore the potential use of generative AI tools in speculative space production and education: a) narratives in architectural design education and b) integrating AI tools into architectural education.

2.1. The role of narratives in architectural design education

There are many types of external representations that can give the designer fresh ideas and inspire the designer in architectural design education (Goldschmidt & Sever, 2011). Visual, auditory, and written external representation types can be given as examples of various stimuli. Each of these stimuli types provides inputs that give the designer ideas and trigger some thoughts in his/her mind. Although the contribution of visual stimuli to the design process has been intensively studied within the subject of Design Cognition and in design education, there are also studies that examine the effects of written sources on the designer. For example, Goldschmidt and Sever's study (2011) shows that participants who were given written stimuli generated more creative ideas. Compared to visual stimuli, the use of written stimuli triggers more abstract thinking (Goldschmidt & Sever, 2011). However, of course, the contribution of written sources to the design process does not have to be only stimuli. The designer can also use the written text as a representational tool to externalize his/her own thoughts. Designers use a range of representation techniques, including sketches, physical and digital geometric models, diagrams, graphs, notations, and object properties (Gül & Maher, 2009). Each technique has different potentials in terms of constructing thought throughout the design process. The use of these different representation techniques in the process will positively affect the design process (Oxman, 1997) because the design process needs

the most appropriate representation technique to deal with the design problem encountered (Dorta et al., 2016). Writing in design develops alternative solutions and ideas (Gelmez & Tüfek, 2022) and can be a method for the designer to construct the space in education. Writing directly contributes to the design process of students (Gelmez & Tüfek, 2022) when allowing a student to reflect on his/her personal design project (Clemente et al., 2017).

There is also the use of writing in combination with various AI tools that produce visuals from text. For example, in Yıldırım's study (2022), it was observed that students who produced through AI with written inputs benefited from the tool while solving the design problem, and in Sadek and Gelil Mohamed's study (2023), it was observed that students who created prompts with narrative production and fed these prompts to AI achieved more creative results compared to the traditional method. In the paper, during the design process in the architectural design studio, students were both given written stimuli and expected to produce a narrative. This stimulus and the text expected to be produced by the students are on utopia and dystopia literature. The reasons for this are, first of all, it becomes evident that every utopia must necessarily design space. Therefore, we can say that every utopia generates a sense of spatiality and is inherently architectural. So, the subject of utopia and dystopia is suitable both for reading and writing about and for spatial production. The other reason is that it is important to recognize that architecture is also about hope and envisioning a better future through the possibilities of the different (Picon, 2013). Therefore, it is necessary to open opportunities for people to transform and shape the city they live in as they desire. And utopias are fertile fields for thinking about alternative possibilities. At the same time, being able to speculate on the future, whether through utopia or dystopia, encourages all kinds of critical thinking and includes comprehensive evaluations of the life of an individual, the city, and the world. The ability to produce and discuss this critical thinking is very important in architectural education. In this way, architectural education is a productive domain for questioning space and imagining alternatives. Therefore, in architectural education, utopias that are open to speculation have a unique importance.

2.2. Integration of artificial intelligence models into architectural education

When discussing the integration of AI into architecture, it is essential to first define and clarify the concept's scope. AI is an umbrella term encompassing the concepts of "machine learning" and "deep learning." There is a relationship between these three concepts, ranging from a broad sense to a narrower one. While all machine learning models fall under AI, not all AI models are within the scope of machine learning. Additionally, deep learning is a relatively recent advancement in machine learning that has significantly advanced the field of AI (Leach, 2022). AI has become a generative system with deep learning. Generative AI refers to various technologies that can synthesize text, images, or other content in response to written prompts (Oppenlaender et al., 2023). This study focuses on text-to-image generative AI tools that are in the scope of deep learning. The literature review focuses on the uses of these models in architectural design and architectural education.

The use of AI tools in the architectural studio has become a tool used by students in various stages of design, such as research, analysis, representation, and facade design, and its integration into the studio has diversified alongside developments in AI (Paananen et al., 2023). Moreover, natural language-supported text-to-image AI tools that emerged in 2022 hold significant potential for use in the early stages of design (Jaruga-Rozdolska, 2022). An AI image generator employs deep learning algorithms and text-to-image techniques to produce novel images aligned with user-provided text descriptions, trained on diverse image data and parameters (Enjellina et al., 2023).

The current literature presents how AI image generator tools have been integrated into architectural design ed-

Table 1. *Information of participants.*

Participant	Years Studied	Tool(s)	Experience
S1	2	MJ + PsBeta	No
S2	1	MJ	No
S3	1	MJ	No
S4	3	MJ + PsBeta	No
S5	1	MJ + PsBeta	No
S6	2	MJ	No
S7	1	MJ	No
S8	1	MJ + Adobe Firefly + PS Beta	No
S9	1	MJ + PsBeta	No
S10	3	MJ	No
S11	2	MJ	No
S12	1	MJ + PsBeta	No

1 = **58%**
2 = **25%**
3 = **17%**

ucation. The initial search focused on terms such as "artificial intelligence," "generative text-to-image models," "Midjourney," along with keywords like "architectural education," "architectural design," and "design studio." Articles in the literature can be categorized into three main themes based on their focus: 1) the impact of these tools on creativity, 2) prompt engineering, and 3) the role of these tools in the design process.

Paananen et al. (2023) and Sadek & Gelil Mohamed (2023) examine the impact of these tools on students' creativity. For instance, Sadek and Gelil Mohamed (2023) found that students who used AI tools during the early stages achieved more success than students using traditional methods. Paananen et al. (2023) argue that these tools support creative idea generation when used in the early stages of design.

Some studies in the literature focus on the generation of textual data, i.e., prompts (Jaruga-Rozdolska, 2022; Paananen et al., 2023). For example, Paananen et al. (2023) extensively present the prompts used by students during the concept generation stage of the design process. Additionally, there are studies that use textual sources to convert them into spatial representations using text-to-image generation tools (Sadek & Gelil Mohamed, 2023; Yıldırım, 2022). For instance, Yıldırım (2022) suggests that students benefit from their favorite books, while Sadek and Gelil Mohamed (2023) recommends starting the design process with a narrative.

The design process is multifaceted and complex. Therefore, it is important to consider AI tools as participants in this process and to structure their interaction with designers (Akcay Kavakoglu et al., 2022; Figoli et al., 2022). For example, integrating AI tools into architectural education in collaboration with sketching is highlighted as an important aspect (Tong et al., 2023; Yıldırım, 2022).

In conclusion, it is possible to draw the following conclusions from the studies conducted at different focal points in the literature:

- Integrating AI tools into the architectural design process made educators reconsider their curriculum.
- In the early stages of the design process, text-to-image AI tools can act as a catalyst to support creativity.
- It is important to design AI and student interaction in the studio.
- The data selection to be used in the integration of these tools into the design process is crucial.

While the literature reveals the various potential uses of these tools, the question of how to integrate them into architectural education remains somewhat ambiguous. The answer to this question needs to be explored through empirical studies.

3. Case study: artificial intelligence supported speculative space production workshop

The workshop covers a total of ten working days. The participants of the workshop are mostly first-year to second-year students. Table 1 reveals the years studied by the participants in their architecture undergraduate education, the AI tools they used for their final submissions, and whether they had prior experience with these tools before the workshop.

The workshop aimed to educate students about using AI tools in architectural design and provide them with practical experience in integrating text-to-image-based AI tools into the architectural design and representation phases. Within the workshop's scope, the architectural and urban imaginings of the selected utopia or dystopia are supported by generative

AI tools across transitional and continuous written, verbal, and visual representations. Students were encouraged to draw sketches and write texts, and they attempted speculative space production based on utopia or dystopia. In the following section, the setup and phases of the workshop and the methodology were explained.

3.1. Workshop setup

In this section, the preparation of the workshop will be examined in four parts:

a) literature review to define the scope and subject of the workshop,

b) identifying various utopia and dystopia works,

c) determining the text-to-image AI tool to be worked with,

d) studies on the workshop program.

3.1.1. Reviewing the literature to define the subject and scope of the workshop

The first stage of preparing the workshop structure is the review of the literature. When various studies related to the AI tools planned to be used in the workshop are examined, it is observed that text-to-image AI tools can support designers in terms of generating ideas in the early stages of design (Paananen et al., 2023; Sadek & Gelil Mohamed, 2023). The study by Sağlam and Çelik (2023) attempted to use AI tools on utopias as a means of possible alternatives and, therefore, constructing speculative spaces. However, this study differs from our study by using literary utopias in the conceptualization phase of architectural design. As a result, the subject of the workshop is to experiment with spatial production based on utopia and dystopia.

3.1.2. Selecting utopia and dystopia literature

Each utopia-dystopia literature is undoubtedly significant; however, for the works given to the participants in the workshop to be suitable for the purpose of the study, they need to cover various criteria. These criteria can be listed as follows:

- The selected books should have been written in various historical periods.
- They should encompass or potentially encompass the six criteria expected in the final production in the workshop ((1) City Plan, (2) Transportation system, (3) Daily movement, (4) The functions and forms of the structures, (5) Management - Politics, (6) Culture of production and consumption).
- They should be suitable for research, having articles, and/or theses, and/or critical essays written about it.

When the criteria are evaluated comprehensively and considering the number of participants (12), the created literature pool is as follows:

- Utopia (1516) - Thomas More
- The City of the Sun (1602) - Tommaso Campanella
- New Atlantis (1626) - Francis Bacon
- Herland (1915) - Charlotte Perkins Gilman
- We (1921) - Yevgeny Zamyatin
- Brave New World (1932) - Aldous Huxley
- 1984 (1949) - George Orwell
- Island (1962) - Aldous Huxley
- A Clockwork Orange (1962) - Anthony Burgess
- The Dispossessed (1974) - Ursula K. Le Guin (This novel is divided between two participants due to its portrayal of two different cities: Urras and Anarres.)
- The Spaces of Hope (2000) - David Harvey (Work focused on the Edilia, or 'Make of it what you will' section.)

3.1.3. Determining the text-to-image AI tool to work with

In the process of developing the workshop curriculum, it was decided to use Midjourney as the text-to-image AI tool based on the instructors' experiences and research. Midjourney is selected for its features, such as allowing the user to be more participatory in the process compared to other popular tools like Adobe Firefly and Dall-E (Jaruga-Rozdolska, 2022), offering options to create alternatives for the generated image, expand its context, and having a user-friendly interface (Sadek & Gelil Mohamed, 2023). Various attributes such as desired and undesired elements, the style of the image, aspect ratios, and abstraction scale can be defined by writing prompts. Additionally, the ability to view the work of other users

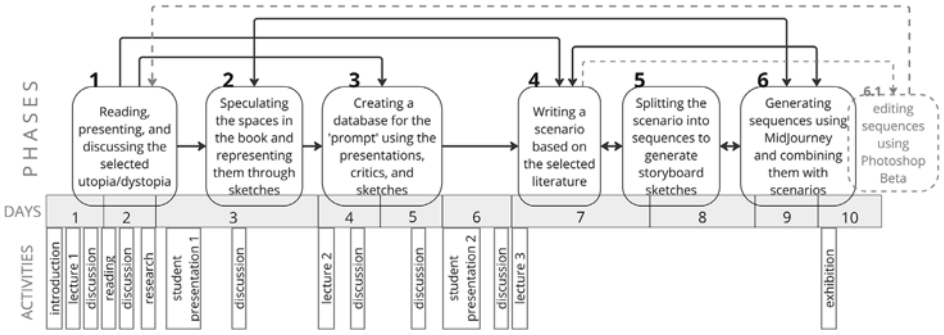

Figure 2. *Phases of the workshop.*

and examples for creating prompts in a Discord interface can be considered as positive aspects of this tool.

3.1.4. Studies regarding the workshop program

The workshop program has been equipped with various activities such as presentations, readings, and discussions in line with the skills aimed to be acquired by the students. In this regard, the instructors have made the following preparations: (d1) Three different presentations have been prepared, covering the history of utopia-dystopia, the use of AI in architecture, and sequences in architecture. (d2) As part of the goal to enhance participants' skills in narrative and visual production, Bayrak's (2019) article "Istanbul 2100" and Tschumi's (1981) book "The Manhattan Transcripts" have been selected as sources. Moreover, discussions have been organized based on the selected texts to increase active participation. (d3) To increase peer-to-peer interaction and make studio productions more collective, a Google Drive folder accessible to all participants has been created, allowing them to track each other's work.

3.2. Phases of the workshop

During the workshop, the students followed six non-linear stages in the analogue-digital production cycle, including their synthesis: (1) Reading, presenting, and discussing the selected utopian/dystopian work, (2) speculating the spaces in the book and representing them through sketches, (3) creating a database for prompts using presentations, critics and sketches, (4) writing a scenario based on the selected literature, (5) splitting the scenario into sequences and generating storyboard sketches, (6) generating sequences using Midjourney and combining them with the scenarios. These stages have been involved in a reflective relationship throughout the process; for example, participants have made returns to their work in the second and fourth stages while producing in the sixth stage. This process is presented in Figure 2. The subsequent section delves into each stage of the process in more detail, accompanied by the students' productions.

The first stage of the process spans a three-day period. On the first day, students received a lecture on utopia-dystopia. On the second day, students continued their research in the studio environment, and on the third day, the first stage was completed with presentations and discussions. Students utilized both the original source and literature to prepare their presentations. Following the presentations, the instructors evaluated them based on the six categories mentioned above (see section 3.1.2).

The second stage of the process began on the third day of the workshop, following the book presentations. Students sketched to create their initial visualizations of the spaces in the utopia/dystopia they were responsible for (Figure 3). Students were encouraged to produce sketches from different scales and perspectives to comprehensively depict the space/city during this stage.

In the third stage, students acquire various AI tools and gain initial experiences. This stage began with a lecture that covered the history of AI, its applications in the field of architecture,

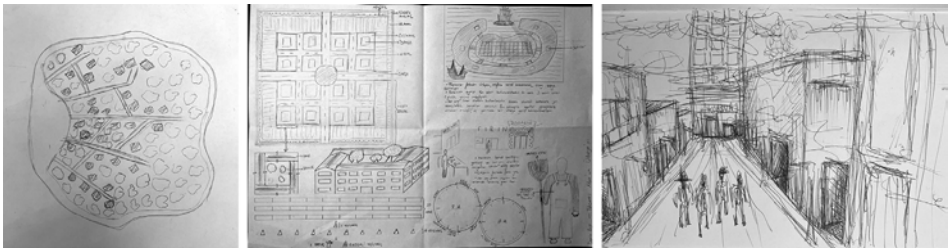

Figure 3. *Phase 2: initial sketches (left: Island sketch by S8, middle: Utopia sketches by S1, right: A Clockwork Orange sketch by S9).*

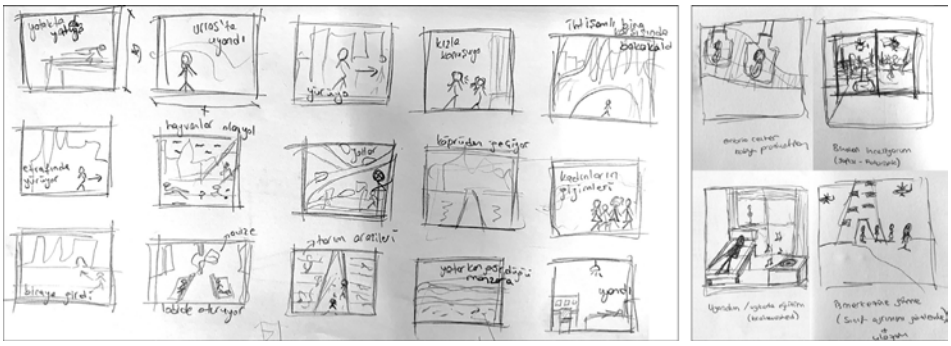

Figure 4. *Phase 5: Storyboard Sketches (Left: Urras from The Dispossessed, right: Brave New World).*

and the introduction of popular image generator tools. Students received fundamental guidance on writing prompts. They conducted their initial experiments in prompt writing using tools like Adobe Firefly, Scrabble Diffusion, and mnml.ai. Following this, a systematic process was undertaken to gather the data they would use in prompt writing to visualize their utopias. In this process, students transformed the visual, verbal, and written data they had gathered about utopias up to this point into suitable text data for prompts. Visual data was transformed through sketches produced in the second stage using Midjourney, verbal data through the feedback given on presentations and sketches, and written data through transforming the information collected during presentations.

The fourth stage began on the seventh day of the workshop with a lesson on Tschumi's architectural theory, understanding sequence in architecture, and the storyboard technique. In this stage, students were asked to write a scenario based on their imagined utopia/dystopia. The scenario was expected to be narrated from the perspective of a character who does not follow the book's storyline but reflects the spaces of the city comprehensively. Thus, a dialogue between text and visuals was established again through narrative. Each student's scenarios were edited based on the feedback from the instructors. For example, a portion of the S11's scenario related to the book "Dispossessed", the city of Anarres, by Ursula K. Le Guin is as follows:

> *"As soon as I descended, they took me on a quick tour. Everything and everyone are intertwined. No one has their own space. I had not thought of it this way before. The factories are clustered somewhat separately from the city. Workers are toiling. But for what? There is no such thing as money. Why are they working?... I get the answer: To progress. No one tells them to work. Everyone works in the field they want, and they are free to contribute to the advancement of the lineage. But isn't that the goal? To advance the lineage. Is that really it?"*

The fifth stage is breaking down the scenarios into sequences and preparing storyboard sketches. At this point, students have created the sequences with hand-drawn sketches (Figure 4).

The sixth and final stage involves producing the sequences conceptual-

Figure 5. *Phase 6: Sequences generated via Midjourney ("We" sequences by S5).*

ized in the fifth stage, using Midjourney (Figure 5). The last three days of the workshop are dedicated to the refinement, finalization, and presentation of the productions. Scenes were repeatedly generated through Midjourney, in line with the students' spatial speculations and the feedbacks from the instructors, until they approached the desired vision. In cases where Midjourney was insufficient, adjustments were made to the visuals using Adobe Photoshop's beta version with AI support. As a result, storyboards were combined with scenarios and presented. Students produced an average of 13 frames, with a maximum of 20 and a minimum of 9. There were no restrictions on the length of their scripts. The shortest scenario was approximately 250 words, while the longest scenario was approximately 850 words.

3.3. Analyzing the study

The case study was analyzed in two aspects: process and outcome. In the analysis of the participants' design process, the visual analysis method was used to determine reflective behaviors. The expert evaluation method was applied to analyze the final products of the workshop.

3.3.1. Analyzing the process

In order to analyze the design processes, the processes of each student were decoded separately. This analyzing method was handled under 3 main headings: a) data collection, b) determination of categories, c) visual analysis. These sub-headings will be detailed in the rest of the chapter.

a) Data collection: During the workshop, observations were made. Diaries written by the students and interim submissions were collected. With these data, the students' productions in the process, the relationships they established between the productions and the representational media they used were revealed.

b) Determination of categories: The productions made during the workshop were systematically handled and categorized. Thus, it was aimed to create a common language for the process of all participants. The categories are basically divided into three according to the mode of representation: written, verbal, and visual. Representations are also categorized under 2 sub-headings: stimuli and productions. Stimuli is a source of inspiration, and it may be an internal representation like mental imagery or an external representation like a real-world object, an image for example (Goldschmidt, 2010). Stimuli types are novels (utopia & dystopia literature), sources (articles and books), lectures and critiques provided by the studio instructors. Productions are the different types of external representations that students produce and submit during the workshop. Depending on the medium, these are divided into eight categories: prompt, scenario, presentation, narrative, storyboard sketches, AI-generated sequences, and sequence sketches.

c) Visual analysis: As a result of the data collected and the categorization of these data, diagrams were produced to visualize the design process of each student. The diagrams were aimed at revealing the students' use of AI in the process and the relationship of this use with other productions. In this way, it is possible to observe the reflectivity in students' design processes.

The diagram is based on an equilateral triangle to reveal three modes of representation. Each of the modes; written, verbal, and visual, is placed at the corners of the triangle. Production types are also placed in the diagram according to the mode they belong to.

Accordingly, Prompt and Scenario are given in written; sequence sketches, storyboard sketches, and AI-generated sequences are given in visual. The presentation is placed between the two since it is both written and verbal; narrative (final digital storyboard) is placed in the middle of the diagram since it contains all three representation modes in common. Source and book, which are stimuli types, are placed in written, while lectures and critiques are placed in verbal representation type. All these components are represented by circles, and dashed lines are used to show the relationships. When two representations relate, it means that the information created in one representation is transferred to another. The presence of two lines between two representations indicates that the production that the student has realized in a certain representation is revised when he/she moves to the other representation and returns to the first representation. Figure 6 shows the visual analysis diagram created for S7. For example, while there was only one interaction line between the presentation and sequence sketches, the AI-generated sequences produced by developing the Prompt were changed by returning to the prompt stage. Therefore, a relationship in which it reflects from one representation to another was revealed. Since the study aims to integrate AI into the design process, in the diagram design, the AI-generated sequences and Prompt representations belonging to the AI generation are colored differently from the other representations. Each circle in the diagram expands in proportion to the number of interactions that the representation has.

The visual analysis method was applied to the design process of 12 participants of the workshop (Figure 7). When the diagrams are analyzed comparatively, it can be seen that the cases with the highest number of relationships established with different representations are S5, S6, S11, and S7; the cases with the lowest number are S12, S2, and S4.

Based on the diagrams, the participants who use AI more effectively in their processes can be analyzed. Accordingly, it is seen that S11, S5, S9 and S4 stand out in the use of AI. In addition, the participants who support the narrative, which is the final product and located in the middle of the diagram, with other materials the most, are S5, S10, S6, and S3.

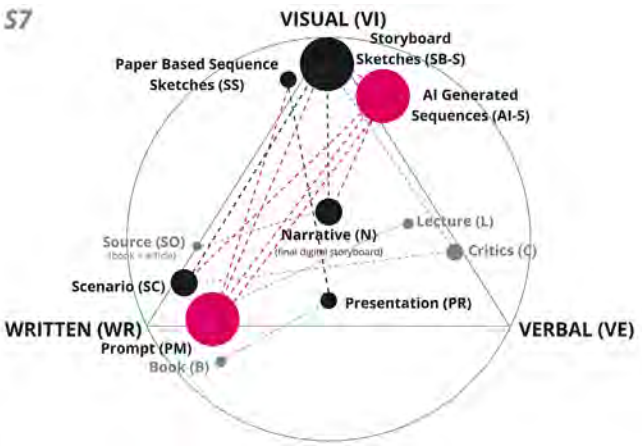

Figure 6. *Diagrams setup.*

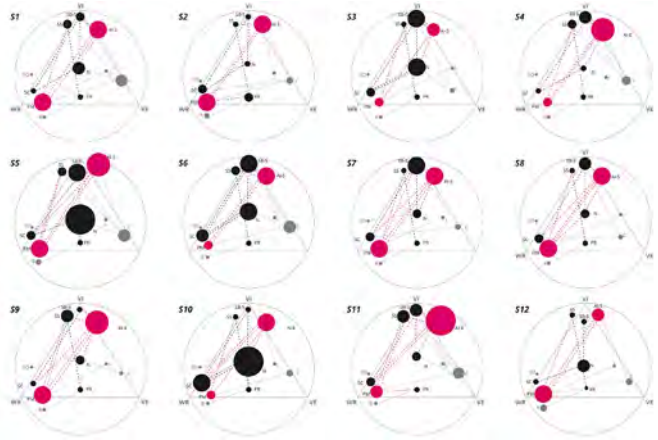

Figure 7. *Diagrams show the relationships that the participants established between the design media throughout the process.*

3.3.2. Analyzing the outputs

The final outputs were evaluated by eight judges. Two of the judges were also the instructors of the workshops. The remaining six judges were PhD students from various programs related to architecture. The judges participated in the evaluation without being aware of the research objectives, the hypothesis of the study, and the workshop process. The jury members carried out the evaluations independently of each other. The evaluation grades were given on a scale of 1-5, with 1 being the lowest score and

Table 2. *Expert evaluations.*

	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
	Utopia (1516) Thomas More	The City of the Sun (1602) Tommaso Campanella	New Atlantis (1626) Francis Bacon	Herland (1915) Charlotte Perkins Gilman	We (1921) Yevgeni Zamyatin	Brave New World (1932) Aldous Huxley	1984 (1949) George Orwell	Island (1962) Aldous Huxley	A Clockwork Orange (1962) Anthony Burgess	The Dispossessed - Anarres (1974) Ursula K. Le Guin	The Dispossessed - Urras (1974) Ursula K. Le Guin	Spaces of Hope (2000) David Harvey
Consistency with the literature	3.40	3.50	2.75	2.50	5.00	3.40	3.33	4.00	2.67	4.50	4.00	3.00
Comprehensive description of utopia or dystopia	4.13	2.88	4.25	3.63	4.25	3.38	3.63	3.50	2.88	3.88	3.63	3.13
Continuity of Sequences	3.50	2.13	4.38	4.00	4.63	3.38	4.25	3.63	3.50	4.50	3.63	2.13
Arithmetic Mean	**3.68**	**2.83**	**3.79**	**3.38**	**4.63**	**3.38**	**3.74**	**3.71**	**3.01**	**4.29**	**3.75**	**2.75**

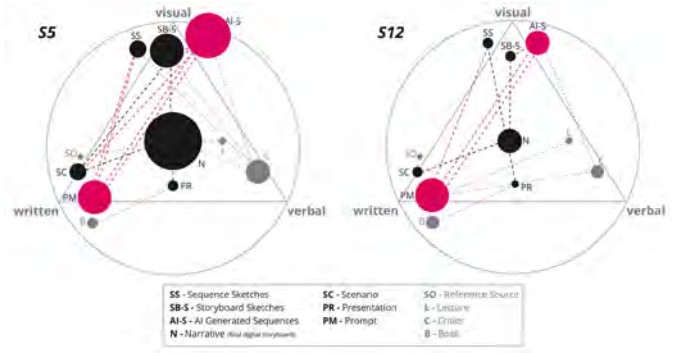

Figure 8. *Comparing the processes of the most successful and the least successful student.*

5 being the highest score. The grades given by the workshop facilitators and design experts have equal weights.

The expected output at the end of the workshop was defined as a storyboard consisting of sequences that would consistently narrate the spaces and experiences in the book each student was responsible for. The resulting products were evaluated based on the following criteria in line with these expectations: 1) consistency with the literature, 2) comprehensive description of utopia or dystopia, and 3) the continuity of sequences. The jury members evaluated the students' works according to these criteria. Among these evaluation headings, consistency with the given book is related to how detailed the student has researched the given book. The holistic description item is related to the construction of the space in line with the six sub-headings previously mentioned. In order to provide this construction of the space, it is important to use sketch drawings and text-to-image AI tool effectively. The last evaluation criterion aims to evaluate the continuity of the sequences and the relationship between the scenario writing, sketches, and images produced by artificial intelligence. In this way, instead of evaluating only the final product, the final production and the process are evaluated together. The grades obtained as a result of this evaluation are shown in Table 2. In the table, the grades given in three different evaluation criteria for each book are averaged.

According to the evaluation results, the student with the highest average grade is S5, and the students with high grades are S10, S3, and S11, respectively. The student with the lowest average grade was S12, and the students with the lowest grades were S2, S9, S4, and S6, respectively. However, when evaluated based on categories, the average grades of the students vary, which shows that students are successful at different levels in different areas.

3.4. Process and outcome crossover

In a general assessment, it was observed that successful students had more interactions and more shifts between design media. For example, when we compare S5, who received the highest grade according to the expert evaluations, and S12, who received the lowest grade, it is clear from the graph that S5 created a much richer network of relationships (Figure 8). It can be said that S5 expanded both the products she produced with AI and her narrative, which is the final product of the workshop, by establishing relationships with other mediums. Therefore, she followed a reflective process. S12, on the other hand, followed a more linear process by establishing fewer relationships between design mediums.

Moreover, when the processes of the students were analyzed together with the evaluation criteria, it was found that the students with high scores in the evaluation of consistency with the literature established more relationships between the presentations they made about the utopia/dystopia given to them and the narrative, which is the final product. In the other criterion, the comprehensive description of the utopia/dystopia, it was observed that students with high evaluation scores produced more sketches and AI-supported visuals. According to the last

evaluation method, which constitutes the continuity of sequences, it was observed that more successful students established relationships between the written scenario and the visuals they produced and that they thought of two types of production together. In order to achieve this, they considered scenario writing, sketch drawings, and AI-supported visuals together and provided a transition between different media.

4. Discussion

The utilization of AI image generator models in design education should commence by establishing the rationale behind their adoption, followed by instructing students on their proficient application with the correct terminology tailored to specific design assignments (Paananen et al., 2023). This section discusses how AI tools can be integrated into the architectural design process and education based on the experiences and insights gained from the case study. Firstly, under the focus of Midjourney, the potentials and limitations of image generator AI tools in the design process are systematically presented through literature research and case study. Subsequently, the discussion shifts to the integration of AI tools in the studio, along with recommendations for studio instructors.

4.1. Potentials and limitations

AI image generator tools offer several advantages in the design process. These include assisting designers with ideation, saving time by quickly visualizing thoughts, and democratizing the design process by aiding users with limited architectural knowledge. During the workshop, AI-generated images helped bring out ideas that might not have emerged during the sketching phase. Just as computational design tools can enhance traditional design approaches by enabling designers to explore various possibilities (Terzidis, 2006), AI tools can assist in generating new ideas, especially in the early stages when the problem is still ill-defined (Dortheimer et al., 2023; Enjellina et al., 2023; Jaruga-Rozdolska, 2022). Moreover, they allowed participants to quickly create high-resolution graphics, facilitating discussions about consistency with source material and the relationships between spaces not explicitly described in the work. Instead of spending hours sketching or using complex design software, a designer can quickly obtain a visual representation with AI tools (Yıldırım, 2022).

In the workshop, where 58% of participants were first-year architecture students, AI support proved crucial in helping them think about space and convey their thoughts. Participants stated that AI tools allowed them to express ideas more effectively than sketches alone. It can be said that being able to make creative productions without the need for prior skills or experience democratizes the process (Oppenlaender, 2023).

On the other hand, there are also potential limitations to using AI in the design process. These can be classified as follows: the design tool taking over the designer's role, spatial inadequacy of the generated visuals, the potential for bias in artificial intelligence, restrictions against producing objectionable content, and access limitations.

One limitation is the risk of AI tools taking over the design process if the designer is unfamiliar with how the tool operates. If the designer does not understand the principles behind AI tools, their potential may remain untapped, and the tool may end up being a final product rather than an added element in the design process. However, design tools should be used to explore various possibilities (Terzidis, 2006). Using AI tools in relationships with different design media, as in the workshop process, can be a way to avoid this limitation. There is also a spatial inadequacy limitation in the outputs produced with current AI tools. For example, the final productions of the students in the workshop did not extend beyond the second dimension, leading to inconsistencies in some sequences. Some spaces in the sequences were not exactly the same as each other, hindering the presentation of a consistent representation of the envisioned space. To overcome this issue, additional tools can enhance the spatial

qualities of Midjourney productions. There are studies in the literature that aim to develop such a method (Doumpioti & Huang, 2023; Eke, 2023). For example, Eke (2023) has generated 3D models from Midjourney-generated visuals using depth map analysis and point cloud.

AI tools like Midjourney, influenced by their datasets, may not generate features absent from the training images. For instance, Student 4 tried to create visuals related to "Herland" and specified that women should have short hair. However, the resulting visuals showed women with long hair. Designers should be aware of such bias and may need to intervene in the outputs using different methods. Moreover, Midjourney restricts certain words in prompts to prevent the creation of objectionable content. Students working on dystopian scenarios encountered these restrictions during the workshop. For example, when generating scenes involving the 'epsilon' caste from "Brave New World," Midjourney imposed restrictions.

Another restriction is related to access. Midjourney is can only be accesible through various subscription packages. The Basic Plan, Standard Plan, Pro Plan, and Mega Plan offer different features at monthly prices of $10, $30, $60, and $120, respectively. The Basic Plan was used in the workshop, allowing up to 200 image generations per month. However, this limitation prevented students from experimenting as much as they would have liked during the image generation phase.

4.2. Recommendations to studio instructors

According to Schön's theory (1983), design is a 'reflective conversation with the situation'. Accordingly, it is important to provide an environment in the design studio that will allow the student to move between different design representations and situations. Considering that the design process should be constructed in a way that includes different media (Goldschmidt and Sever, 2011 & Dorta et al., 2016), it is important to construct the relationship between AI-generated representations with other media. In the research context, natural language is the communication medium for text-to-image models focused on. However, effective communication with AI requires meeting the requirements of a writing technique called "prompt." Exercises in narrative creation can be given at the beginning of the studio's prompt writing exercises. Adding activities to enhance students' writing skills to the curriculum has become even more important to strengthen communication through AI-driven text. Furthermore, students should practice using written sources more extensively to create narratives and practice converting visual and verbal elements into literary elements.

During the studio process, it is important not to rely on a single tool but to use various text-to-image AI tools. This way, students can understand how the AI tools they use work and decide which tool to use based on the problem at hand, avoiding reducing the process to a single design tool. In this sense, before working with Midjourney in the workshop, experiments were conducted with various AI tools, allowing students to learn important aspects of prompt writing and providing opportunities to get to know the tools better.

5. Conclusion

In terms of architectural theory and education, utopias have great importance in terms of criticizing the existing system and constructing alternatives. Including utopias and similar speculative narratives in the curriculum encourages architecture students to alternative ways of thinking and stimulates their creative thinking. In this context, the integration of text-to-image AI tools into architectural studios through narrative creation is proposed as a novel approach to provide students with a new perspective on the design process. This approach was tested through a workshop conducted by the authors of the study as a case study. The workshop, which lasted 10 days, included 12 participants and 2 facilitators. Most of the participants were first-year to second-year architecture students. Participants were able to use AI to create detailed

representations of utopian and dystopian spaces. The reflective and iterative use of AI throughout the workshop showed that these tools provide new perspectives and improve design outcomes. It was observed that especially the students who used the AI tool in relation to other representations in the design process achieved more successful results. In this way, inferences were made about how image generator AI tools can be integrated into the architectural design studio process. Thus, the study confirms that AI can be a valuable asset in architectural education.

Furthermore, the potential and limitations of AI tools are presented in line with the findings of the literature review and case study. The advantages of AI tools in the design process include assisting designers in generating ideas, visualizing ideas quickly, and democratizing the process for users with limited architectural knowledge. However, the limitations of AI tools in the design process and suggestions on how these limitations can be overcome are also presented.

The integration of AI tools into architectural education requires a thoughtful approach to curriculum design. It is essential to provide students with the necessary skills to use these tools effectively and to understand their potential and limitations. By incorporating exercises in narrative creation and prompt writing, students can improve their ability to communicate with AI and utilize it as a powerful design tool. In conclusion, the study confirms that AI can be a valuable asset in architectural education, providing students with new opportunities to explore and visualize speculative spaces.

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Empowering communities through social design practices: Lessons learned from post-disaster practices in Türkiye

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Abstract
Socially engaged design initiatives play a critical role in empowering disadvantaged and confined social groups by seeking to improve their living conditions. Several social design practices operate in Türkiye, but these efforts have not been sufficiently studied or evaluated regarding their impact on community empowerment. Specifically, there is limited understanding of the actors involved, the nature of stakeholder collaboration, and the openness of design practices to both citizens and experts. This study aims to explore the strengths and weaknesses of existing social design practices in empowering disadvantaged communities, while also outlining key steps to improve future initiatives. The research examines 20 social design initiatives that followed the destructive earthquakes of February 6, 2023, in Türkiye. Findings indicate that 85% of the initiatives focused on developing design solutions for the living areas of disadvantaged people, while 50% aimed to empower residents through design and project implementation. Only three initiatives (15%) collaborated with public organizations, and just as many engaged in crowdsourcing activities. Notably, none of the initiatives included disadvantaged groups in the ideation process. Furthermore, many initiatives acted as design-driven initiators or facilitators rather than as mediators bridging diverse community interests. In response to these gaps, we identify key elements needed for enhanced social design practices that genuinely empower communities.

Keywords
Community engagement, Design empowerment, Post-disaster recovery, Social design, Türkiye.

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1. Introduction

Over the past decade, numerous socially engaged design initiatives have emerged to tackle pressing societal challenges such as the COVID-19 pandemic, climate change, socio-spatial inequalities, and catastrophic events. Many of these initiatives aim to create social impact through design, involving community stakeholders and other actors. Renowned consultancy agencies such as IDEO, Participle, and Think Public have developed frameworks to understand and guide these social projects (Chen et al., 2016).

In both literature and practice, several concepts have been used to describe social design activities, such as socially oriented design, design for social innovation, design activism, transition design, and socially responsible design (Gürdere Akdur, 2023). In this study, we use the term social design (SD) to refer to participatory design efforts that (1) research, (2) generate, and (3) realize new ways to benefit society rather than profit (Armstrong et al., 2014). These initiatives seek to include people who are typically excluded from design processes.

Social design activities aim to fill the agency gaps that public authorities or commercial entities have not addressed by improving living conditions for disadvantaged and marginalized social groups within communities. This is achieved by involving specific groups of citizens and partnering with public and private entities to enact social change (Markussen, 2017). Social design initiatives connect vulnerable community groups with volunteer designers, individuals, and organizations, making these efforts particularly crucial during social, economic, and environmental crises.

This study examines social design initiatives in Türkiye following the February 6, 2023 earthquakes. After these disasters, private, public, and civic organizations engaged in spatial activities in addition to rescue operations. Social design initiatives tackled a range of spatial issues, from micro-scale interventions to temporary shelters and housing settlements, to improve the built environment.

Although some initiatives, such as *NasilBirMimarlik* and *Atölye*, have documented these practices, a comprehensive review is still needed. These social initiatives have not yet been systematically studied or evaluated regarding their impact on vulnerable communities, the roles of the actors involved, the nature of stakeholder collaboration, or the openness of design practices to both citizens and experts. Furthermore, Türkiye lacks local studies on social design practices (Gürdere Akdur, 2019).

In response to these gaps, this study aims to explore the strengths and weaknesses of existing social design practices in empowering disadvantaged community groups. The goal is to outline key steps for improving future initiatives and to identify critical factors for conducting more effective social design practices. With these objectives in mind, this study addresses the following research questions:

- How do post-disaster social architectural design practices in Türkiye empower impacted communities through cooperation?
- What are the approaches and objectives for community empowerment?
- What roles do spatial agencies play in social design practices aimed at post-disaster relief?
- How can these practices be improved to be more resilient and sustainable?

Our analysis began with a thorough examination of the literature to establish fundamental concepts and pivotal discussions surrounding social design. A compendium of 33 spatial initiatives followed. Initial data was gathered from initiative websites, documents, and media outlets. We applied Armstrong et al., (2014) and Markussen (2017)'s social design principles to determine our selection criteria. A number of initiatives were excluded: those that did not use design activities to research, develop, and implement innovative methods for social benefit over commercial gain, or those that did not focus on improving living conditions for disadvantaged community groups. Following this rigorous selection process, 20 social design initiatives that

met our criteria were chosen for further review and analysis.

The following section provides an up-to-date overview of concepts and practices in social design and then delves into the specialized concepts used to analyse the selected cases. Section 3 presents a comprehensive analysis of the 20 selected cases, followed by a critical discussion and identification of key elements for improved social design practices (Section 4). The conclusion discusses the study's findings and outlines directions for future research.

2. Background

2.1 Social design, design for socio-innovation, and design activism

Social design has gained popularity in recent decades, but early work by Papanek (1973) (Socially Responsible Design) and Whiteley (1993) (Design for Society) was among the first to incorporate environmental concerns into design processes. Bill Morrison's Permaculture food growing systems and Schumacher's relocalization movement are also notable early social design practices (Armstrong et al., 2014).

Following the imposition of austerity measures on public activities during the 2008 economic crisis, designers increasingly sought clients from the public sector and NGOs (Chen et al., 2016). Social design began to address complex, large-scale issues like climate change, migration, ageing populations, and inclusivity across various countries (Armstrong et al., 2014). These practices sought spatial solutions for extreme poverty, disease, and post-catastrophe situations—contexts where traditional market and state interventions often failed (Manzini, 2015, p. 64).

Armstrong et al. (2014, p.20) identified three main catalysts for social design:

- Social design excels at addressing large-scale, complex challenges that demand agile, intelligent solutions.
- Social issues often require cross-disciplinary research and design, fostering collaboration and interaction.
- Social design fills the gap left by lagging research in broader fields, contributing to social and public issues not fully addressed by governments, commercial consultancies, design associations, and others.

In recent years, many international social design networks have emerged, with Design for Social Innovation and Sustainability (DESIS) and Designers without Borders being the most prominent (Markussen, 2017). These networks promote social innovation (DESIS Network, n.d.) and offer support to improve community and educational environments (Designers without Borders, n.d.).

In literature, several terms have been used to describe social design, such as socially responsible design, design for social innovation, and design activism. Though all derive from the foundational principles of social design, they exhibit distinct characteristics. Most social design approaches address socio-spatial issues in poor and disadvantaged communities, while design for social innovation focuses primarily on promoting social change towards sustainability. This includes reducing environmental impact and regenerating common goods through meaningful innovations, usually geared towards middle and upper-class groups (Manzini, 2015, p. 64-65). The former aims to stimulate social transformation by sidestepping politics, while the latter adopts a system-oriented approach that is sometimes criticized for lacking holistic or sufficiently radical changes (Gürdere Akdur, 2023).

In the first framework of social design, "social value" is often a small but important qualitative change at a microscale. In contrast, design for social innovation views social value as contributing to the "common good," benefiting society on a larger scale (Markussen, 2017, p. 169). Although both approaches operate within social and environmental contexts, design activism uniquely operates within a political context (Gürdere Akdur, 2023). Markussen (2013, p. 38) defines design activism as activities that "promote social change," "raise awareness about values and beliefs," or "challenge the constraints imposed by mass production and consumerism on daily life."

The Solidary Mobile Housing (SMH) project (De Smet et al., 2022) serves as an example of social design, aiming to enhance the living conditions of homeless individuals in Brussels by innovating, testing, and refining a short-term housing model for disadvantaged communities through participatory and cooperative design.

Similarly, Santiago Cirugeda's Recetas Urbanas («Urban Prescriptions") exemplifies design activism. projects like "Scaffolding" and "Taking the Street" show how citizens can achieve their goals while adhering to legal frameworks. In Seville, Cirugeda transformed dumpsters into children's playgrounds or useful installations, allowing residents to reshape their neighbourhoods temporarily (Markussen, 2013, p.48). This illustrates how design activism can resist established power structures and local regulations by incorporating citizens' desires into design practices.

Today, defining the boundaries of social design and related concepts is increasingly challenging. Due to overlapping objectives, the distinctions between social design, design activism, and design for social innovation have blurred (Chen et al., 2016). Social design has evolved to lean more towards social innovation for problem-solving, while design for social innovation has begun addressing socially sensitive issues, particularly in the post-economic crisis period (Manzini, 2015, p. 65). Designers now frequently initiate and execute projects as "design activists." Given the intermingling of these roles, this study adopts "social design" as an umbrella term that encompasses activities conducted under the broader scope of design for social innovation and design activism.

2.2 Key concepts

In line with the research questions, this paper focuses on four key concepts: Cooperation as a fundamental practice in social design, Spatial Agency and its roles, the Empowerment approach and its objectives, and Civic Involvement in design ideation. The following sections establish a conceptual framework that will be used to evaluate social design cases for disaster relief in Türkiye.

2.2.1 Cooperation as a key practice in social design

As an intersectoral practice, Social Architectural Design activates the quadruple helix by involving academia, government, civil society, and industry (Carayannis & Campbell, 2009). It is characterized by empowerment, inclusion of civic needs, transdisciplinarity, heterogeneity, organizational diversity, social accountability, and reflexivity. Social Architecture utilizes a cooperative approach to generate applied knowledge and innovative solutions to complex social issues. The outcomes of this cooperation—whether architectural products or critical project proposals—represent mode 2 knowledge production, which involves solving real-world problems through stakeholder collaboration to create innovative solutions (Gibbons et al., 1994).

This collaboration takes multiple forms, including intersectoral, cross-sectoral, and intrasectoral cooperation, and it can be led by various actors such as academia, civic groups, architectural offices, or the building sector.

Social Architecture as a cooperative endeavour exhibits several key traits. First, it promotes civic engagement and empowerment (Petrescu & Trogal, 2017). By empowering communities and addressing their needs, Social Architecture ensures that architectural solutions are responsive to the social contexts in which they are implemented. Secondly, cooperation in Social Architecture embraces transdisciplinarity, heterogeneity, and organizational diversity. It brings together experts from different fields, sectors, and backgrounds, enabling them to pool their knowledge. Social Architecture initiatives aim to create innovative, holistic solutions to complex social issues by incorporating diverse perspectives (Petrescu & Trogal, 2017).

2.2.2 Spatial design agency and roles

Spatial Agency offers a unique perspective that redefines how we perceive and produce architecture (Awan et al., 2013). This approach goes beyond traditional architecture's

emphasis on aesthetics and building construction, expanding possibilities for both architects and non-architects in alignment with Social Architecture (Lorne, 2017).

Originally, Spatial Agency emerged as a critique of mainstream neoliberal practices in architecture. It suggests moving beyond the purely physical to address spatial challenges, incorporating critical thinking about social resolutions and non-anthropocentric elements (Schneider & Till, 2009). This perspective significantly departs from the traditional notion of the "starchitect" as a solitary genius, instead advocating for a more collaborative approach akin to Social Architecture, where multiple stakeholders engage in dialogue and collective action.

This shift in practice has given rise to numerous new roles, including but not limited to: architects as activists, policy lobbyists, facilitators of public participation, mediators, critical spatial practitioners, boundary object designers, and creative situated practitioners (Romero & Pak, 2021).

The core intent of Spatial Agency aligns with that of Social Architecture: to incite change and improve current conditions. However, the pathways to achieving this goal are diverse, encompassing activities such as activism, education, networking, publication, crafting material goods, and policy formulation—all aimed at empowering others.

In Spatial Agency, architecture is transformed from 'matters of fact' into 'matters of concern' (Latour, 2004). This transformation even extends to 'matters of care' (de La Bellacasa, 2011). In this context, Architecture is not merely a collection of objects governed by rules and methods; it is a matter of concern and care, where the social consequences within interconnected networks hold greater significance than the architectural objects themselves (Schneider & Till, 2009).

2.2.3 Civic involvement in ideation as a *sine qua non* for empowerment in social design

Senbel and Church (2011) identified ideation—generating and articulating ideas about one's living spaces—as the most critical moment in design empowerment. Ideation enables citizens to share their ideas and contribute to concept development. True design empowerment occurs when civic ideas are genuinely incorporated into the broader set of priorities during design decision-making. By fostering civic involvement in ideation, architects can ensure their designs are socially relevant and attuned to the needs of the users (Pak & Verbeke, 2014). Without efforts to include users and civil society in design and planning from the initial stages, a project cannot genuinely be categorized as 'social.'

True empowerment of citizens through architectural design is only achievable when users are involved from the earliest phase of a project. Such early involvement allows them to influence the design, spatial configuration, and programmatic relevance of the built environment (Gün et al., 2020).

2.2.4 Empowerment approach and objectives in social design

As reviewed in the previous sections, social design initiatives adopt diverse approaches and objectives to empowerment. Kesdi's (2020) Design Empowerment Framework (DEF) offers a systematic approach to study these initiatives. DEF emphasizes empowerment as both a process and an outcome, carried out systematically and holistically through participatory methods.

Kesdi and Gunes (2019) outline four main empowerment objectives as desired outcomes of the empowerment process:

- 1. Social awareness: Understanding how infrastructures, policies, and cultural values—such as local heritage and neighbourhood dynamics—affect participants' lives.
- 2. Social integration: Facilitating community connections, networking, building community, and fostering collaboration.
- 3. Daily and professional practices: Enabling participants to develop skills in informal learning, technology use, problem-solving, and action in context.
- 4. Sustainability: Ensuring the continuation of capacity-building practices.

A central objective of Social Architecture is the creation of Social Space, a concept introduced by Henri Lefebvre (1991) in his spatial triad theory. This triad aims to construct social space through the following facets of a conceptual triangle (Kahraman et al., 2018):

- 1. Physical Space: the tangible, concrete architecture and urban environment that we can directly see, touch, and navigate. It is the actual physical space inhabited and interacted with.
- 2. Discursive Space: the abstract space of intellectual understanding or representation, such as maps, plans, or models. It represents how space is conceptualized, planned, and often controlled or regulated.
- 3. Lived Space: the experiential space of inhabitants and users, produced and modified over time through its usage, as well as its associated meanings and emotions. It is space as directly lived, expressed through its images and symbols.

In Social Architecture, these three dimensions of space are considered in an intertwined manner, recognizing that architecture shapes not only physical space but also social relations (lived space), and that it is informed by societal discourses, representations, and models (discursive space). Thus, Social Architecture aims to design spaces that are not only physically functional but also support meaningful social interactions and reflect societal values and needs.

DEF emphasizes three key discursive spaces within the social space triad:

- 1. Physical Thinking Spaces: created using reflective and critical methods to help participants reflect on their challenges, contributions, and opportunities. These spaces are instrumental in developing skills and fostering a shared understanding of problems, processes, and solutions.
- 2. Encountering Spaces: Generated through meetings, workshops, and other gatherings, these spaces facilitate meaningful interactions and dialogue among participants.
- 3. Consultative Spaces: in the final discursive phase, designers consult participants directly, unlike in the earlier stages.

The empowerment goals of Social Design theory and practice extend beyond the abstract notion of spaces. As illustrated by Pak (2016), these goals aim to create dialogic spaces as well as conceive and materialize tangible architectural spaces. Empowerment in social architectural design, as a goal, entails practices that "enable various actors to participate in the intersecting stages of planning and decision-making" (Horelli & Wallin, 2010). On the other hand, empowerment through social design responds to user needs and enables them to construct and reconstruct their living environments (Pak, 2016). This comprehensive approach emphasizes the interconnectedness of social architecture, spatial agency, and design empowerment, aligning closely with principles of civic engagement and empowerment in design.

3. Contextualization and analysis of the social design cases in Türkiye using focus concepts

Turkish society has faced numerous natural disasters, large-scale urban interventions, and socio-spatial disparities, prompting several social design initiatives to address these challenges. One such initiative, *Düzce Umut Atölyesi*, held design and construction workshops with vulnerable communities following an earthquake. Similarly, in 2007, an academic-based initiative called *Gülsuyu-Gülensu Dayanışmacı Planlama Atölyesi* challenged the implementation of a large-scale urban transformation plan affecting nine neighbourhoods. The initiative collaborated with academia, government, and civil society through participatory design workshops (Yalçıntan, 2009). In response to earthquakes, numerous associations and volunteer groups contributed to rebuilding damaged areas (Göcenoğlu & Onan, 2008).

Various other initiatives, such as *Acil Korona Mekanları* and *Atölye İstanbul*, formed research networks and developed social design proposals to address the challenges faced by disadvantaged and marginalized groups during the pandemic (Gürdere Akdur, 2020). Academic conferences also

focused on exploring social design, including the National Design Research Conferences (UTAK) and the XIII International Sinan Symposium, which examined the responsibilities of design in the community. These examples illustrate that Türkiye has a history of engaging in social design to some extent. However, few studies have systematically examined these practices (Gürdere Akdur & Kaymaz, 2019). Therefore, these initiatives must be deconstructed to assess how they empower citizens, the type of collaboration established, their goals, and which actor groups are involved in the ideation process. This study aims to fill these gaps. Before discussing our findings, it is essential to contextualize the critical situation faced in Türkiye.

From a socio-political perspective, Türkiye differs significantly from Western contexts due to several conjunctural elements. Design and planning decisions related to the built environment in Türkiye are typically made by the central government using a "top-down" approach , which has been widely criticized (Şenol Balaban, 2019; Gün et al., 2021). Consequently, a participatory process is often absent in the design of the built environment (Türkün, 2011). This situation has led some civil society groups to organize protest activities with the public (Karaman, 2014). Simultaneously, as illustrated in previous examples, academics and NGOs have taken on social architecture projects and other design activities to empower local communities.

Following the February 6, 2023, earthquake, a similar approach was adopted in Türkiye. In response to the large-scale earthquake, social design initiatives sought to compensate for deficiencies by enhancing the spatial quality of temporary living spaces provided by the state and addressing unmet spatial needs. A similar approach has been observed in previous initiatives, such as the Paper Log Houses produced by Shigeru Ban Architects following the 1999 Gölcük Earthquake, which aimed to address emergency shelter deficits, and in housing design workshops conducted through a participatory approach with contributions from social architecture initiatives like *DepDer* and *Düzce Umut Atolyesi* after the Düzce earthquake in 1999 (Shigeru Ban Architects, n.d.; Düzce Umut Atölyesi, 2017).

Throughout history, Türkiye has been highly susceptible to natural disasters such as earthquakes, floods, and landslides (Table 1). Earthquakes represent the most hazardous catastrophic events in Türkiye. Since 1900, over 144,000 people have died in 114 earthquakes of magnitude greater than 5, directly affecting 23.8 million people (Emergency Events Database, 2023).

On February 6, 2023, two major earthquakes, with magnitudes of 7.7 and 7.6, struck Türkiye and Syria. According to an updated UNFPA report released on June 18, 2023, over 50,000 people died and 107,000 were injured in these earthquakes. Three million people were displaced, with 1.6 million living in informal settlements and 800,000 in formal sites (UNFPA, 2023). The Türkiye Earthquakes Recovery and Reconstruction Assessment released by The Presidency of Turkey (2023) documented that these earthquakes were the most hazardous in Türkiye's history, resulting in numerous spatial problems in the affected regions, including:

Table 1. *The authors compiled EM-DAT data on Turkish natural disasters between 1900-2023.*

Disaster Type	The Number of Case	Total Death	Total Affected
Earthquake	114	114.118	23.872.910
Flood	53	1496	1.811.292
Land Slide	14	504	13.671
Mass Movement (Dry)	1	261	1.069
Storm	12	101	14.763
Widfire	5	24	262.238
Total	199	146.504	26.275.943

- 1. Educational activities were suspended until the end of March in the hardest-hit cities, including Adıyaman and Kahramanmaraş.
- 2. Temporary settlements faced limited security and significant challenges in providing basic necessities such as electricity and heating.
- 3. There was an urgent need for educational spaces and playgrounds to support continued learning and socialization, helping to mitigate the psychological impacts of the earthquake.
- 4. Difficulties arose in meeting the spatial needs of disadvantaged groups, including the elderly, refugees, and individuals with disabilities.
- 5. The death of craftsmen and the destruction of commercial units and ateliers resulted in a loss of cultural heritage and severely impacted the local economy.

Additionally, the southeastern region of Türkiye, where the earthquake occurred, is vulnerable to harsh climate conditions, such as extreme heat in summer and floods in winter and spring. These conditions further affect the quality of living spaces, making it essential to provide housing settlements that support accommodation, public infrastructure, and social environments for community groups to socialize and meet their basic needs (UNFPA, 2023). So far, the government's relief-to-recovery strategy has included moving people to formally managed and serviced sites (container cities). Of the 106 organizations providing humanitarian assistance, 57 provide emergency shelter, and 9 facilitate temporary settlements (UN OCHA, 2023). In addition, many civic, public, and private initiatives have contributed to upgrading living conditions in the region through social design strategies. In the next section, we will discuss and analyse the activities of these initiatives in detail from a social design perspective (see Data Analysis).

3.1 General overview of analysed cases

As stated in the Introduction, several selection criteria were established to identify the cases analysed in this study. After applying these criteria, we chose 20 social design initiatives for further review and analysis (Table 2). There is considerable diversity in the framework of evaluation criteria for these initiatives.

The selected initiatives were established between 1992 and 2023. As shown in Figure 1, almost all cases—except for Shigeru Ban Architects & VAN, a Japanese architecture firm—carry out design activities in Türkiye. Notably, 70% of the initiatives (n=14) are in Istanbul. *TeCe Mimarlık* was the earliest initiative, established in 1992, and 30% of the initiatives (n=6), such as *HATAG* and *Acil Tasarım Stüdyosu*, were established after the most recent earthquake.

Volunteer academics and students participated in academic initiatives such as METU Emergency Design Studio and Dokuz Eylül University (DEU). Shigeru Ban Architects & Voluntary Architects' Network (VAN) had already realized several disaster relief projects outside of Türkiye, such as providing tents for vulnerable populations affected by the 2022 Tonga volcanic eruption and tsunami, and developing a temporary community centre after the 2021 tornado in the United States (Shigeru Ban Architects, n.d.). Some of the initiatives, such as *MİMARDER* (Architectural Research Associations),

Table 2. *The analysed social design cases.*

Social Design Cases		
İstanbul Planning Agency (IPA)	Afet Sonrası Ortak Yaşam	Haos Design Architecture
Acil Tasarım Stüdyosu	HATAG	NOI: MiniKo
DEU Faculty of Architecture	Gelecekteki Sen	Piknik works
Herkes için Mimarlık (HİM)	KAF Kolektif	Shigeru Ban Architects & VAN
Mimarlık Araştırmaları Derneği	Suna'nın Kızları	SO? Architecture and Ideas
NEF Foundation	Urban.koop	TeCe Mimarlık
Yer Çizenler Herkes İçin Haritacılık Derneği	Van-Kocaeli Volunteers Platform	

are research-based and have conducted multiple projects on disaster relief. In addition, six private organizations (30%) participated in social design, such as TeCe Architecture, SO? Architecture, and Haos Design, which normally operate as architectural firms but took on additional responsibilities following the earthquake to support vulnerable communities, contributing by developing project proposals and producing design guidelines.

Social design initiatives used various strategies to engage local communities. For example, *Suna'nın Kızları* collaborated with the Ministry of Family and Social Services to build a Child Life Centre in Kahramanmaraş. The Van-Kocaeli Volunteers Platform partnered with the Turkish Ministry of Interior Disaster and Emergency Management Presidency (AFAD) to build nursery and education units in *Adıyaman Altınşehir Container City*. Other initiatives, such as Haos Design and NOI: *Miniko*, directly sent the children's play and activity containers they had prepared, which were produced with donations from individuals, institutions, and associations, to the affected region for immediate use.

KAF Collective travelled to a tent camp in Kahramanmaraş, where they initially provided food services in collaboration with volunteers. Later, they directly built social areas, playgrounds for children, and socialization spaces together with local volunteers (Erkara, 2023). *Yer Çizenler Herkes için Haritacılık Derneği* focused on the need for spatial data in the region, launching an open call for a *Mapathon*. They collected spatial data with volunteers and shared it with local authorities and actors working to improve the spatial conditions in temporary living spaces (Leson et al., 2023). In contrast, *TeCe Architecture, SO? Architecture*, and *PiknikWorks* chose to contribute by making their design proposals open source and sharing them instead of directly interacting with the communities in the area.

3.2 Cooperation in social design

As introduced in Section 2, social design is a cross-sectoral practice that involves at least two actors from academia, government, civil society, and industry, activating the parts of the quadruple helix (Carayannis & Campbell, 2009). This study analyses selected social design initiatives based on organization type, sectoral cooperation, and cooperation type.

To categorize initiatives by organization type, we identified academic, civic, association, private, and public organizations (Table 3). Several sectoral cooperations were developed by these initiatives. Following the conceptual discussion in Section 2, we classified the cooperation relationships based on the quadruple helix

Figure 1. *The distribution of analysed initiatives by time and location.*

Table 3. *The distribution of analysed cases by cooperation types.*

Analyzed Cases	The Type of Organization	Sectoral Cooperation	Cooperation Type
İstanbul Planning Agency (IPA)	Public Organization	Government-Industry	Cross-coop.
Acil Tasarım Stüdyosu	Academic Initiative	Acad. & Ind. & Civ. Soc.	Cross-coop.
Dokuz Eylül Uni (DEU) Faculty of Arch.	Academic Initiative	Academia	Non-coop.
Herkes için Mimarlık (HİM)	Association	Civil Society – Industry	Cross-coop.
Mimarlık Araştırmaları Derneği	Association	Civil Society-Academia	Cross-coop.
NEF Foundation	Association	Civil Society-Industry	Cross-coop.
Yer Çizenler Derneği	Association	Civil Society-Industry	Cross-coop.
Afet Sonrası Ortak Yaşam	Civic Initiative	Civil Society	Intra-coop.
HATAG	Civic Initiative	Civil Society	Intra-coop.
Gelecekteki Sen	Civic Initiative	Civil Society-Industry	Cross-coop.
KAF Kolektif	Civic Initiative	Civil Society	Intra-coop.
Suna'nın Kızları	Civic Initiative	Civ. Soc. – Acad. – Gov.	Cross-coop.
Urban.koop	Civic Initiative	Civil Society – Industry	Cross-coop.
Van-Kocaeli Volunteers Platform	Civic Initiative	Civil Society – Gov.	Cross-coop.
Haos Design Architecture	Private (Arch. Office)	Industry-Civil Society	Cross-coop.
NOI: MiniKo	Private (Arch. Office)	Industry	Non-coop.
Piknik works	Private (Arch. Office)	Industry – Civil Society	Cross-coop.
Shigeru Ban Architects and VAN	Private (Arch. Office)	Ind. – Civ. Soc. – Acad.	Cross-coop.
SO? Architecture and Ideas	Private (Arch. Office)	Industry	Non-coop.
TeCe Mimarlık	Private (Arch. Office)	Industry	Non-coop.

framework. Among the selected social design initiatives, 35% were singular cooperations, such as *HATAG, KAF Kolektif,* and *TeCe Mimarlık*, which did not collaborate with other sectors. Other initiatives cooperated with at least one different sector. For example, *Suna'nın Kızları*, a civic initiative, collaborated with a public organization (Ministry of Family and Social Services), a civic organization (Turkish Philanthropy Funds), and academia (academics) to construct a children's life centre. On the other hand, *Piknik Works*, a private organization, collaborated with the industry sector (TETRA) and a public initiative (*Upcycle Istanbul*) to design and construct different types of toilet units in one of the temporary housing settlements in the region. Table 3 indicates that 3 public organizations (15%) were involved in sectoral cooperations.

Cooperation among initiatives is another important component for classifying cooperations. We identified three types of cooperation in the social design initiatives:

- 1. Cross-sectoral Cooperation: Cooperation between different sectors.
- 2. Intrasectoral Cooperation: Cooperation within the same sector.
- 3. Non-cooperation: No cooperation with other sectors or within the same sector.

Out of the 20 initiatives, 13 (65%) engaged in cross-sectoral cooperation. Three initiatives (15%), such as *HATAG* and *KAF Kolektif*, developed intrasectoral cooperation. The remaining four initiatives (20%), such as *NOI: MiniKo*, did not establish any cooperation with different sectors or within the same sector.

3.3 Design agency and roles in social design

Various actors actively participate in social design activities, with their agencies and roles varying significantly. After analysing the selected cases, we identified nine types of actors involved in these practices: academic initiatives, civic initiatives, associations, chambers, industries (companies), volunteer students, volunteer citizens, private organizations, and public organizations.

Associations are prominent social design actors in Türkiye, being organized as legal entities under the Ministry of the Interior Affairs. Civic or academic initiatives, however, are not part of any official entity and are thus classified independently. Among the organizations, some, like SO? Architecture and TeCe Mimarlık, conducted activities as solo practices, while others, such as Haos Architecture, involved volunteer citizens. Volunteer students and civic initiatives were also engaged by Shigeru Ban Architects (Table 4).

Table 4. *The distribution of selected cases by involved design agency and roles.*

The Involved Actors/Collaborators	Academic Initiative	Civic Initiative	Assoc.	Chambers	Industry (Company)	Volunteer Students	Volunteer Citizens	Private (Incl. Arch. Offices)	Public Organiz.
İstanbul Planning Agency								●	●
Acil Tasarım Stüdyosu	●		●	●	●				
DEU Faculty of Architec.	●					●			
Herkes için Mimarlık (HİM)			●			●	●	●	
MİMARDER	●		●						
NEF Foundation			●		●			●	
Yer Çizenler Derneği		●	●				●		
Afet Sonrası Ortak Yaşam		●	●						
HATAG		●							
Gelecekteki Sen		●				●			
KAF Kolektif		●	●						
Suna'nın Kızları	●	●							●
Urban.koop		●	●				●	●	
Van-Kocaeli Volunteers		●							●
Haos Design Architecture							●	●	
NOI: MiniKo								●	
Piknik works		●			●			●	
Shigeru Ban Architects &VAN		●				●		●	
SO? Architecture and Ideas								●	
TeCe Mimarlık								●	

Social design organizations vary by the roles they take in the process. Romero and Pak (2021) classify these roles as activists, policy lobbyists, experts facilitating public participation, mediators and facilitators for design empowerment, critical spatial practitioners, boundary object designers, and creative situated practitioners. However, given that these social design activities took place during a post-disaster period, it was not possible to access all of the on-site data necessary to classify these organizations fully, nor the unique conditions under which they operated. Therefore, based on available data and social design literature, we developed higher -level categories to evaluate the roles of social design organizations:

- 1. Design-Driven Initiators: These actors identify themselves as central to the design process. They operate with limited process-driven practices, meaning the involvement of different actors during the design phase does not necessarily affect the design output.
- 2. Facilitator-Initiators: These actors strive to involve every relevant stakeholder throughout the design process. The contributions of involved actors shape the design outputs (Gürdere-Akdur, 2023).
- 3. Mediators: These actors work to bridge gaps between stakeholders, facilitating communication and ensuring that community needs are integrated into the design process.

Some social design organizations also play roles as design activists, promoting social change, raising awareness of values and beliefs, and questioning the constraints posed by spatial problems that people encounter in their daily lives (Markussen, 2013, p.38).

For instance, *NOI: Miniko*, *TeCe Mimarlık,* and *DEU Faculty of Architecture* functioned as "design-driven initiators." *MİMARDER* organized a competition for temporary housing settlements to promote social change, raise awareness, and highlight problems in these areas as design activists. While some organizations can be categorized based on a singular role, others exhibit blurred roles throughout the process. For example, *Herkes için Mimarlık* not only promoted change and raised awareness as a design activist but also carried out activities as a facilitator.

3.4 Civic ideation

A critical component of social design practices is the involvement of community ideas in the early design process. The strength of social design

activities lies in enabling various stakeholder groups—such as experts, volunteer citizens, and individuals directly affected by the challenges—to participate in the ideation process, thereby facilitating participatory design knowledge creation.

In this study, this group includes vulnerable people directly affected by the earthquakes. Empowerment of these individuals through early involvement provides social accountability and ensures responsiveness to the needs and desires of disadvantaged groups. As such, social design organizations can be more sensitive and adaptive to social contexts.

By considering the unique circumstances of these cases, we specified three ideation types for classifying ideation activities in "social design carried out in societal challenges":

- 1. Crowdsourcing: Aggregating ideas from a broad audience or "huge crowd" (Brabham, 2010, p. 1125).
- 2. Expertsourcing: Involving individuals who have a certain level of expertise and can contribute qualified ideas to the field (Gün, 2019).
- 3. Citizensourcing: Collecting ideas, desires, expectations, and needs from individuals about their living environment and incorporating these contributions directly into design practices in a reflexive manner.

Based on data from released documents, initiative websites, and media outlets, we classified the selected cases by their ideation participation strategy. Crowdsourcing platforms like JotForm matched 2,500 survivor housing requests with 4,500 available properties (Stokel-Walker, 2023). Impacted inhabitants also used social media to report housing needs. However, such initiatives often did not address specific requirements related to social and spatial programs.

Among the selected cases, only three initiatives (15%) carried out crowdsourcing activities, while 35% (n=7) engaged in expertsourcing by involving specific skilled groups in the ideation process (Table 5). Only two organizations, *Herkes için Mimarlık* and *Yer Çizenler Herkes için Haritacılık Derneği*, conducted both crowdsourcing and expertsourcing activities. Im-

Table 5. *The distribution of social design cases by the type of ideation.*

Analyzed Cases	Civic Involvement in Ideation (Crowdsourcing)	Idea Sourcing from Specific Skilled Groups (Expertsourcing)
İstanbul Planning Agency (IPA)		
Acil Tasarım Stüdyosu (Urgent Design Studio)		●
DEU Faculty of Architecture		
Herkes için Mimarlık (HİM)	●	●
Mimarlık Araştırmaları Derneği (MİMARDER)		●
NEF Foundation		
Yer Çizenler Herkes İçin Haritacılık Derneği	●	●
Afet Sonrası Ortak Yaşam ve Topluluk Alanları		●
HATAG		
Gelecekteki Sen		
KAF Kolektif		●
Suna'nın Kızları		
Urban.koop		●
Van-Kocaeli Volunteers Platform		
Haos Design Architecture	●	
NOI: MiniKo		
Piknik works		
Shigeru Ban Architects & VAN		
SO? Architecture and Ideas		
TeCe Mimarlık		

portantly, none of the initiatives involved disadvantaged citizen groups in ideation or provided two-way communication channels for affected inhabitants to express their spatial needs and desires to improve neighborhood quality.

These findings reveal a lack of effective communication and collaboration between social design actors and vulnerable communities. Government agencies have tended to centralize disaster response efforts rather than adopting an open, civic approach. Due to the absence of citizensourcing strategies that enable two-way communication between citizens and designers, social design initiatives have been unable to sustain long-term engagement. Consequently, it has been impossible to monitor user reactions to design proposals, assess satisfaction, or gather meaningful feedback. As such, these initiatives often remained one-off, short-term practices without the long-term sustainability required for incremental and evolutionary design development.

3.5 Empowerment objectives

Previous researchers have studied social design initiatives with a focus on empowerment (Gürdere Akdur & Kaygan, 2019; Kesdi & Güneş, 2019). Gürdere Akdur and Kaygan (2019, p.62) identified five objectives that social design initiatives pursue:

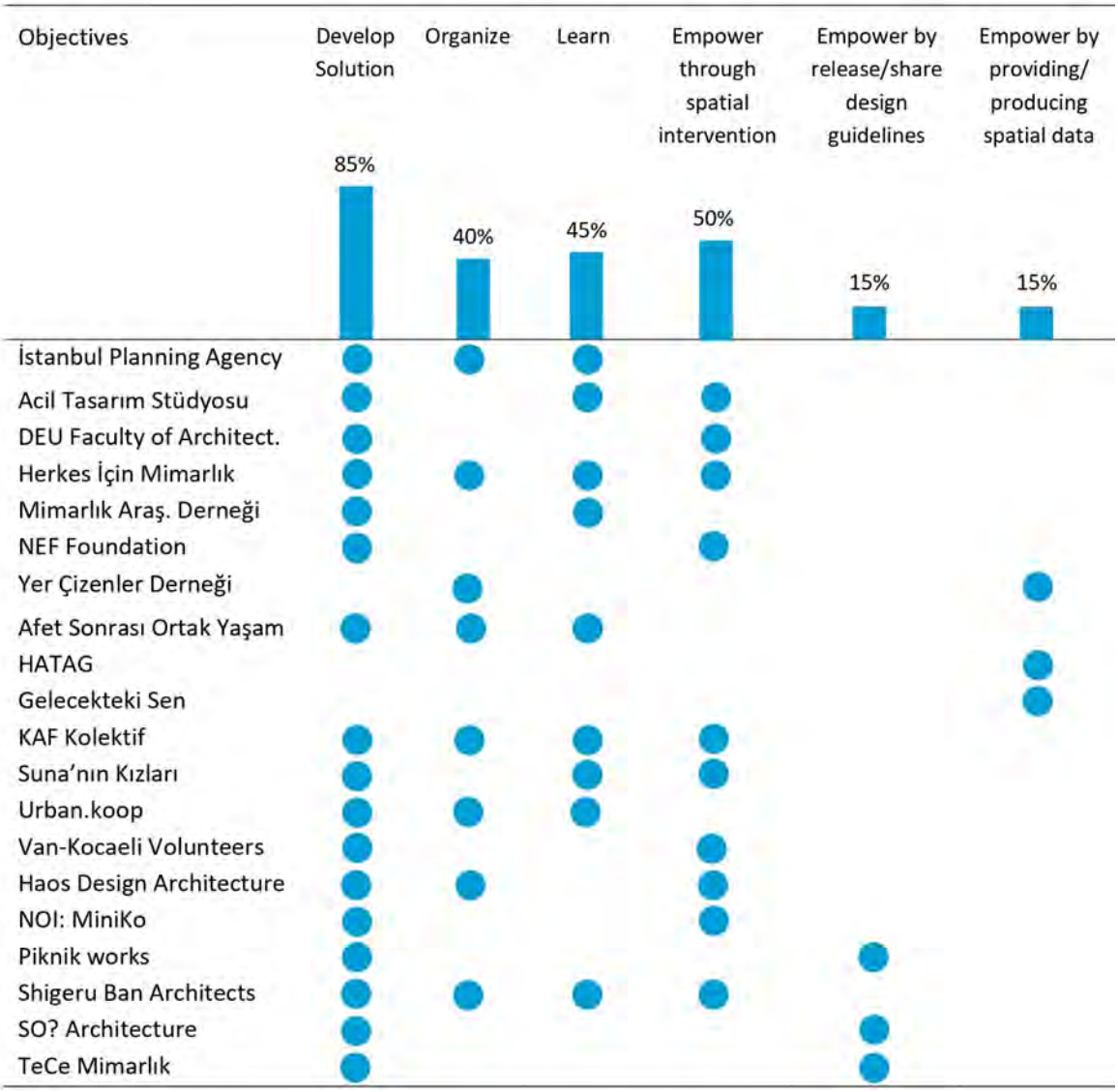
- 1. Develop solutions: Opening debates to find solutions to societal challenges.
- 2. Make Visible: Raising awareness of problems and enhancing the visibility of issues, values, or practices.
- 3. Organize: Mobilizing people to advocate for their rights and become involved in the social, political, and economic processes that shape their lives.
- 4. Empower: Supporting individuals in various ways to increase their agency.
- 5. Learn: Facilitating mutual learning through research and acquiring social design experience.

Kesdi and Güneş (2019, p. 303) also listed the empowerment objectives of social design initiatives. Although these objectives can effectively categorize social design activities based on citizen empowerment, they are not fully applicable to extreme conditions, such as post-earthquake situations. Our analysis revealed that these cases require a new set of objective classifications for more precise evaluation. Thus, we identified six objectives by merging those proposed by previous studies with findings from our analysis:

- 1. Empowerment in developing design proposals: Involving communities in creating design solutions to address their needs.
- 2. Empowerment in organizing: Mobilizing and organizing people to address challenges collectively.
- 3. Empowerment in Learning: Providing opportunities for mutual learning, knowledge exchange, and design experience.
- 4. Empowerment through spatial intervention: Improving spatial conditions through direct interventions in the built environment.
- 5. Empowerment by co-creating design guidelines: Collaborating with stakeholders to develop guidelines that improve spatial quality and resilience.
- 6. Empowerment by providing spatial data: Collecting and sharing spatial data to ensure the effective provision of necessary spatial services to disadvantaged communities.

The most common objective among the analysed initiatives was developing solutions for living areas of disadvantaged people, with 85% of the initiatives pursuing this aim. Half of the initiatives (50%, n=10) empowered people through design by implementing projects that directly addressed their needs. Additionally, 45% (n=9) provided a social design environment for research and experience sharing. SO? Architecture and *TeCe Mimarlık* empowered vulnerable community groups by releasing design guidelines aimed at improving the quality of temporary settlements. Three initiatives (15%) indirectly empowered citizens by providing or producing spatial data to enhance spatial services (Table 6). For instance, *Yer Çizenler Derneği* organized a *Mapathon* that involved 9,000 volunteers in collecting and updating

Table 6. *The distribution of analysed cases by empowerment objectives.*



spatial data. This activity assisted humanitarian organizations and civil societies in coordinating their responses, and local authorities used the data to support the spatial needs of temporary settlements (Leson et al., 2023).

3.6 Reflection on objectives and community engagement in post-disaster cooperation

The approaches outlined in the cooperation overview table represent a wide spectrum of intents, revealing that disaster response is never merely about rebuilding what was destroyed. Each organization operates under a distinct impulse, shaped by their positions on community agency, and the role of design in fostering societal transformation.

Using Table 7, several insights are revealed about how diverse cooperative strategies address post-disaster needs through empowerment, community engagement, and adaptive resilience.

Multiplicity of objectives and the human condition

The objectives guiding these post-disaster cooperatives reveal a multiplicity of intent, reflecting the complexity of human response to catastrophe. Organisations such as *Acil Tasarım Stüdyosu* and *Gelecekteki Sen* pursued the pragmatic needs of space and shelter—a response to the rupture that disaster represents. In contrast, KAF Kolektif and HATAG sought to empower the very communities affected, embracing the notion of communities as self-actualizing entities. Through fostering local resilience, they aimed to restore agency to those rendered passive

Table 7. *Overview of post-disaster cooperative strategies and community outreach methods.*

Organization Name	Reason or Basis for Cooperation	Community Outreach Methods
Acil Tasarım Stüdyosu	To address urgent, complex spatial challenges in post-disaster contexts, initiate effective emergency response through interdisciplinary expertise.	Conducted interdisciplinary workshops and collaborative design sessions with community members to ensure local needs were directly embedded into practical design solutions.
Afet Sonrası Ortak Yaşam	To mobilize civil society for localized community resilience, initiate tailored support for social needs post-disaster.	Created community gathering spaces and support hubs for resource sharing, providing immediate relief with a focus on well-being and local cultural adaptation.
DEU Faculty of Architecture	To apply a research-driven approach in addressing architectural and spatial needs, maintain academic rigor for informing broader rebuilding strategies.	Conducted academic-led surveys and independent field studies to gather insights on spatial and housing needs, focusing on informing future policy and academic outputs.
Gelecekteki Sen	To design adaptive housing solutions catering to displaced populations, ensure climate resilience and local cultural adaptation.	Established temporary structures and organized workshops in affected areas, involving community members in both planning and the effective use of these spaces.
Haos Design Architecture	To fast-track housing and infrastructure solutions, leverage industry networks for efficient and sustainable response.	Organized community-inclusive on-site construction activities, teaching sustainable building practices to local residents, encouraging participatory rebuilding.
HATAG	To empower communities to independently address disaster challenges, foster local resilience through civil society.	Coordinated volunteer efforts and community forums for collective assessment, ensuring rapid response to immediate local needs, emphasizing skills transfer.
Herkes İçin Mimarlık (HİM)	To leverage professional skills and resources to meet urgent spatial needs, integrate community feedback for enhanced design outcomes.	Engaged community members through public workshops, gathering local insights and using them to create disaster-resilient structures tailored to community needs.
İstanbul Planning Agency (IPA)	To mobilize large-scale infrastructure improvements in disaster zones, integrate government and industry resources effectively.	Conducted comprehensive community feedback loops and surveys to ensure urban planning initiatives were aligned with on-the-ground community priorities.
KAF Kolektif	To strengthen local social structures and cultural continuity during disaster response, engage civil society effectively.	Created social spaces and support centers within temporary settlements, fostering cultural activities that contributed to community cohesion and well-being.
MİMARDER	To develop community-driven design solutions, connect civil society and academia for knowledge-based action.	Organized community-academic dialogues and forums, utilizing participatory approaches to collaboratively develop and implement responsive designs.
NEF Foundation	To deploy essential resources efficiently, combine civil society and industry expertise for rapid shelter construction.	Coordinated directly with local leaders to distribute essential materials and conducted community-led building projects to facilitate rapid shelter construction.
NOI: MiniKo	To provide specialized child-friendly environments, create play and learning spaces addressing the psychological needs of children in disaster areas.	Distributed portable play containers to community spaces and collaborated with local volunteers to establish supervised child activities, prioritizing child development.
Piknik Works	To provide accessible sanitation and temporary shelters, collaborate across industry and civil society for practical, inclusive solutions.	Conducted training sessions on the safe use and maintenance of sanitation facilities, engaging local volunteers to ensure sustainable usage.
Shigeru Ban Architects	To implement scalable shelter solutions, collaborate across academia, industry, and civil society for modular adaptability.	Trained residents in construction techniques, fostering adaptability and local ownership of housing solutions for ongoing community resilience.
SO? Architecture and Ideas	To create open-source temporary shelter designs, provide widely replicable solutions for diverse needs in post-disaster contexts.	Distributed detailed design guidelines online, enabling other organizations and communities to easily adopt and adapt these shelter models.
Suna'nın Kızları	To establish safe educational environments, combine support from civil society, academia, and government to aid children impacted by disasters.	Established learning and play zones with local educators, involving parents and volunteers in ongoing programming to support children's well-being and education.
TeCe Mimarlık	To create rapid, accessible design solutions for immediate disaster relief, focus on low-cost, high-impact materials for community implementation.	Provided communities with open-source design materials, empowering them to implement improvements to temporary shelters with available local resources.
Urban.koop	To address immediate and long-term shelter needs, integrate civil society and industry for sustainable housing solutions.	Involved community members in cooperative construction projects, emphasizing sustainable techniques and ensuring ongoing local maintenance and adaptability.
Van-Kocaeli Volunteers Platform	To leverage shared disaster response experience, partner civil society and government for culturally sensitive community support.	Created community centers providing essential services, educational activities, and psychosocial support, ensuring direct outreach to families and children.
Yer Çizenler Derneği	To enhance resource allocation efficiency, produce critical spatial data in collaboration with civil society and industry.	Organized digital mapathons and trained community members in data collection techniques, enhancing real-time mapping and the effective distribution of resources.

by the overwhelming force of the disasters. This diversity of objectives serves as a testament to the necessity of complex responses, where survival, autonomy, and community continuity must interlace to transform a mere subsistence into meaningful recovery.

The restoration of the social fabric

Yet, survival alone is insufficient for the human spirit, which seeks not just existence but flourishing. Herein lies the true significance of objectives that reach beyond the material, such as those pursued by KAF Kolektif and Afet Sonrası Ortak Yaşam. These organizations sought to weave back together the fragile threads of culture, identity, and belonging—threads that are often the first to fray in moments of profound disruption. Suna'nın Kızları addressed the needs of the youngest among us, those whose future is most vulnerable in the wake of disaster. To create spaces of learning and play is to assert that the prefigurative possibility remains and the continuity of social bonds are as critical to recovery as bricks and mortar.

The praxis of engagement and human agency

Involving communities in the process of rebuilding, as seen in the work of Herkes İçin Mimarlık (HİM) and Piknik Works can be understood as an engaged reclaiming of agency. The workshop, the planning meeting, and the hands-on training session are arenas for empowerment and recovery of this agency. When individuals contribute to the reshaping of their environments, they transcend the role of passive recipients of aid; they become co-authors of their futures. This collaborative act involves dialogue, the questioning of assumptions, and the collective pursuit of a shared vision, which ultimately leads to an architecture of resilience, both physical and metaphysical.

Open knowledge and collective empowerment

The sharing of open-source designs and the participatory mapping of disaster zones represent an ethos of knowledge as a commons—a rejection of proprietary barriers in favour of communal flourishing. This approach, exemplified by SO? Architecture, TeCe Mimarlık, and Yer Çizenler Derneği, emphasizes the power of the collective to know, to act, and to be liberated through that knowledge. In a world increasingly defined by the enclosure of information, such practices stand as acts of resistance. To share knowledge openly is to acknowledge that the resilience of one community contributes to the resilience of all, forming a web of interdependence that disaster may fray, but cannot destroy.

Thus, these cooperatives, through their objectives and engagement methods, undertake more than reconstruction; they endeavour to restore meaning, agency, and interconnection in the face of disruption. They remind us that true resilience lies not solely in the rebuilding of physical structures but in the cultivation of empowered, self-aware communities that recognize their own power to shape, adapt, and thrive.

Integrated outreach strategies

The combination of community outreach methods—from participatory workshops and direct construction engagement to cultural continuity initiatives and open-source knowledge sharing—suggests that social design initiatives aim at long-term resilience to a certain extent. NEF Foundation and Urban.koop exemplified this by integrating civil society and industry expertise to deploy resources efficiently and sustain cooperative construction projects. By fostering active community participation and shared ownership, these methods help build a more resilient and interconnected social fabric.

In conclusion, the diversity of intentions and methods illustrated in the table is ultimately a reflection of the richness of human response to crisis. Cooperation here is not monolithic but multifaceted, a complex interwoven practice of place-based solidarity, shared knowledge, and temporal bridging. Each organization embodies a distinct philosophical orientation towards what it means to recover, rebuild, and ultimately flourish. Whether

through the civic ideation actions that reaffirms autonomy, or the open sharing of knowledge that empowers, these cooperative efforts represent a praxis that is community centred and transformative.

3.7 Reflection on long-term sustainability in post-disaster social design

The analysis of the 20 social design initiatives reveals critical patterns regarding their ability to sustain long-term impact. Several key findings emerged from examining their operational timeframes and sustainability approaches:

First, the temporal distribution of initiatives shows that 30% (n=6) were established specifically in response to the February 2023 earthquakes, including HATAG and Acil Tasarım Stüdyosu. This reactive formation pattern, while demonstrating quick mobilization, also highlights potential challenges for long-term engagement since these organizations lack pre-existing operational frameworks and established networks.

The data shows that only 15% of initiatives (3 out of 20) developed frameworks for continuous monitoring and assessment of their interventions. For instance, Herkes İçin Mimarlık implemented systematic documentation of their spatial interventions, enabling iterative improvements. However, the majority of initiatives (85%) operated without formal mechanisms to track the evolution and impact of their design solutions over time.

A significant finding relates to funding models. 65% of the analysed initiatives relied on one-time donations or project-based funding, rather than establishing sustainable financial frameworks. This funding pattern directly impacted their ability to maintain consistent presence and continue spatial improvements in affected areas. The NEF Foundation stands out as an exception, having developed a mixed funding model combining institutional support with ongoing community contributions.

The analysis also revealed that organizations with pre-existing presence in disaster response, such as Shigeru Ban Architects & VAN (established in 1992), demonstrated more sophisticated approaches to sustainability. Their previous experiences in post-disaster contexts informed systematic methodologies for long-term community engagement and spatial intervention.

3.8 Contextual constraints on social design implementation

The analysis identified several distinctive contextual constraints that significantly shaped how social design initiatives operated in post-earthquake Türkiye:

Centralized governance structure

The data shows that only 15% of initiatives (n=3) established formal cooperation with public organizations, despite the government's central role in disaster response. This low level of public-private collaboration reflects the "top-down" approach to built environment decisions in Türkiye, where design and planning activities are predominantly controlled by central government authorities. This centralization created barriers for social design initiatives seeking to implement community-led solutions.

Limited participatory design tradition

The analysis reveals a broader contextual challenge where participatory processes in built environment design are not traditionally practiced. This is evidenced by the complete absence of citizensourcing in all 20 analysed initiatives, suggesting deeply rooted institutional and cultural barriers to community engagement in spatial design decisions.

Economic constraints

The scale of the February 2023 earthquakes, affecting over 3 million displaced people and requiring extensive reconstruction estimated to take at least five years, placed enormous strain on available resources. This economic context forced many initiatives (65%) to rely on short-term, project-based funding rather than sustainable financial models. The analysis shows that only private organizations with established funding

streams, such as architectural firms like SO? Architecture and TeCe Mimarlık, could maintain consistent operations.

Spatial access and security limitations

Among the analysed initiatives, 85% focused on developing design solutions, but only 50% successfully implemented them in affected areas. This implementation gap stems from strict controls over access to official temporary settlement areas and security conditions that limited direct spatial intervention opportunities. The data shows that initiatives with formal public sector partnerships, like Suna'nın Kızları's collaboration with the Ministry of Family and Social Services, achieved higher implementation rates.

Regional environmental challenges

The initiatives operating in southeastern Türkiye faced significant environmental constraints. The analysis reveals that temporary settlements required continuous upgrading due to extreme heat in summer and flood risks in winter and spring. Only 35% of design proposals specifically addressed these climate adaptation needs, indicating how environmental factors constrained design possibilities and implementation timelines.

Socio-political response patterns

The analysis identified a strong disaster solidarity culture in Türkiye, evidenced by the country's position as one of the world's most generous in humanitarian aid. However, this cultural strength paradoxically contributed to a focus on immediate relief rather than long-term social design solutions. Of the analysed initiatives, 70% prioritized rapid response over sustainable community engagement.

Infrastructure and resource limitations

The post-earthquake assessment revealed critical gaps in educational facilities, basic necessities like electricity and heating systems, and specialized spaces for vulnerable groups including elderly, refugees, and disabled people. These infrastructure deficits created competing priorities for limited resources, constraining the scope of social design interventions. The analysis shows that initiatives often had to choose between addressing immediate basic needs and implementing more comprehensive social design solutions.

Civil society organization constraints

While civil society organizations demonstrated higher rates of cross-sectoral cooperation (all four analysed associations established cross-sectoral partnerships) compared to private and academic organizations, they faced significant operational constraints. The need to work within official disaster response frameworks, led by AFAD, limited their ability to implement independent social design initiatives, particularly in formal temporary settlement areas.

These multilayered contextual constraints created a complex operating environment where social design initiatives had to navigate between formal disaster response structures, resource limitations, environmental challenges, and institutional barriers while attempting to serve affected communities. The findings suggest that successful social design implementation requires strategies that can work within these constraints while building longer-term capacity for community engagement and sustainable intervention.

4. Critical discussion

In this section, following the research questions set out in the introduction, we critically discuss how social design practices can be improved to be more resilient and sustainable. Our study revealed that although a wide variety of social design initiatives attempted to empower impacted communities, many experienced drawbacks in implementing effective practices.

Some initiatives acted independently, failing to develop cross-sectoral cooperation, and their collaboration with public organizations was very limited (Table 3). Social design initiatives were often involved as design-driven initiators or facilitators, rather than taking on the role of mediators who can

bridge different community interests by directly engaging with community groups (Section 3.2).

To obtain meaningful and comprehensive results, we cross-examined whether any interesting patterns emerged concerning the types of organizations, cooperation strategies, idea generation, and empowerment objectives. Our study reveals that two of the analysed platforms, which engaged in both crowdsourcing and expertsourcing, were both associations. Examining other types of organizations, it was found that civil society organizations were more likely to be involved in a participatory social design process compared to academic organizations (one out of two initiatives) and private organizations (only one out of six initiatives).

Similarly, when analysing the initiatives by organization type, we found a significant difference in sectoral cooperation. All four associations analysed in the study established cross-sectoral cooperation. Among civic initiatives, 4 out of 7 established cross-sectoral cooperation, while 3 developed intra-sectoral cooperation. In contrast, only half of the private and academic organizations established cross-sectoral cooperation, while the remaining half did not engage in any sectoral cooperation (non-cooperation). These results suggest that civic organizations (associations and civic initiatives) are significantly more likely than private and academic organizations to conduct a participatory process and establish cooperation.

We also examined whether there was a significant difference in empowerment objectives by organization type. No significant difference was found in empowerment objectives such as "develop solutions," "organize," and "empower through spatial intervention" across different organization types. However, the objective of "empower by releasing/sharing design guidelines" was achieved exclusively by private organizations, while the objective of "empower by providing/producing spatial data" was achieved only by civic organizations.

Although user participation is one of the most critical factors for empowering communities through social design practices, none of the analysed initiatives involved impacted inhabitants or disadvantaged groups in the ideation process. Furthermore, none of them provided two-way communication channels to enable feedback loops through which disadvantaged citizens could express their specific spatial needs and desires. Crowdsourcing and expertsourcing activities were also limited (Table 5). Due to the lack of strategies for ensuring long-term sustainability, initiatives often conducted only one-off, short-term practices. This limitation reduces the impact of these initiatives and hampers the ability to achieve continuous, long-term improvements in the spatial quality of vulnerable communities.

These findings highlight the clear need to establish a proactive, cross-sectoral social design innovation ecosystem that goes beyond disconnected, one-off responses. Such an ecosystem could help address the real needs and desires of impacted and vulnerable populations in the long term, in a reflective manner, while facilitating meaningful collaboration with relevant authorities, creative industries, and civil society.

After synthesizing the knowledge from our literature review and our findings, we identified three key interrelated factors for better social design practices to empower communities and foster disaster resilience (Figure 2):

- 1. Intersectorality for Collaborative Design and Operation: Emphasizing collaboration across sectors to pool resources and expertise effectively.
- 2. User-driven and socially situated design actions: Ensuring that design processes are informed by the needs and context of the users themselves.
- 3. Long-Term Sustainability: Prioritizing enduring solutions that can evolve and adapt over time, ensuring lasting improvements for vulnerable communities.

Intersectorality for collaborative design/operations

Social design practices inherently involve complex tasks, requiring the

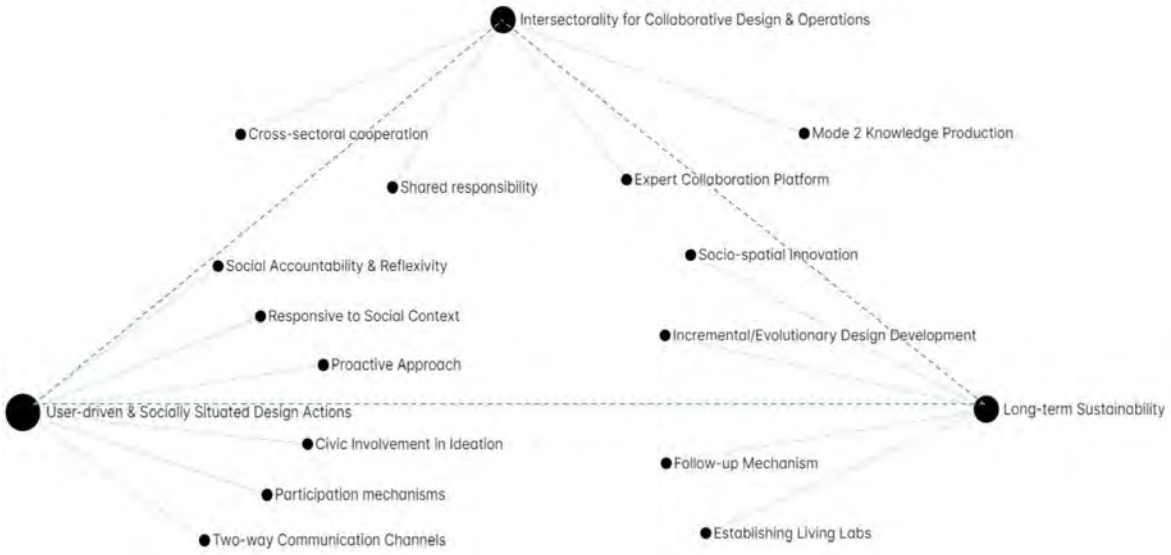


Figure 2. *The Triad of key success factors for better social design practices.*

management of multiple stakeholders throughout the design process and proposal development, as well as the integration of various fields of expertise into intricate design workflows. Additionally, there are often no clearly defined user or client groups for collaboration in these practices (Dorst, 2019, p. 119). In Türkiye, a wide variety of cooperative efforts were established by social design initiatives after the recent earthquake. However, as shown in Table 3, cross-sectoral cooperation was limited, and none of the initiatives engaged all elements of the intersectional quadruple helix (academia, industry, civil society, and government). Despite the involvement of governmental organizations such as Türkiye Disaster and Emergency Management Authority (AFAD) in managing the region, only two initiatives (10%) collaborated with them on social design practices. Moreover, Collaboration among social design initiatives was also limited. Only *KAF Kolektif* and Acil Tasarım Stüdyosu- Shigeru Ban Architects established partnerships with other practices.

In the context of Mode 2 knowledge production, as outlined by Gibbons et al. (1994), which focuses on addressing real-world problems and devising innovative solutions, it is essential for different stakeholders to collaborate and foster effective cross-sectoral cooperation. Sharing responsibilities during the analysis process and defining and achieving goals can prevent miscommunication and speculation through an open and transparent communication environment. To achieve this, existing organizational and management structures must be carefully considered.

In Türkiye, all major decisions related to post-disaster reconstruction and rehabilitation are made by the central government and coordinated by its official unit (AFAD). Furthermore, carrying out social design practices during societal crises is inherently challenging due to the sensitive and fragile nature of these situations. This underscores the necessity of collaborating with public organizations to obtain first-hand information, effectively address civic needs, and implement impactful social design practices on-site. Additionally, decision-making on complex spatial challenges requires a collaboration framework that brings together experts from various disciplines. A central pillar of the social design ecosystem could be an expert collaboration platform (Gün et al., 2021), which would allow stakeholders from different sectors to collaborate and share their expertise. Such an approach can yield holistic, transdisciplinary, inclusive, and socially accountable design solutions to complex social and spatial issues.

User-driven and socially situated design actions

Previous studies reported that the involvement of locals in social design

practices in Türkiye was insufficient, highlighting a need for effective collaboration with local communities (Gürdere Akdur & Kaygan, 2019). The findings of our analysis align with these observations. Traditional social design practices, which aim to address complex societal challenges, often deliver basic and rudimentary spatial interventions due to difficulties in efficiently identifying user groups and their specific needs (Dorst, 2019).

In our study, we identified three types of ideation involvement as evidence of bottom-up design empowerment: crowdsourcing, expertsourcing, and citizensourcing. As noted earlier, crowdsourcing (15%) and expertsourcing (35%) in ideation were limited, and none of the initiatives specifically targeted local groups (impacted and vulnerable people) in their design practices. Furthermore, none of the social design initiatives established two-way communication channels to facilitate feedback loops with vulnerable people. We found no evidence of mechanisms that enabled impacted inhabitants to share their spatial needs with the initiatives, nor any agile response to such demands.

Our study also found that social design initiatives were predominantly reactive, rather than proactive, in addressing issues and finding solutions. The absence of communication channels allowing impacted residents to participate in and make decisions about their living environments is contrary to the goals of social design and may exclude target groups and overlook their needs.

Disaster solidarity culture is quite prevalent in Türkiye. According to the Global Humanitarian Assistance Report, Türkiye is one of the world's most generous countries in providing humanitarian aid (Urquhart et al., 2022). Following the disaster, a substantial number of resources and other humanitarian aid were collected by the government and NGOs. Although ICT-based platforms were established to organize and distribute these aids to vulnerable people —such as *İhtiyaç Haritası*, *Afet Haritası*, *Bir Kira Bir Yuva,* and *Jotform*—none of the NGOs or governmental units established a spatial design empowerment platform that matched the desires and needs of impacted people living in low-quality post-disaster environments. Therefore, there is also a need for a platform that matches volunteers, willing to provide financial or spatial expertise, with the specific needs of vulnerable communities.

As mentioned in previous sections, a project cannot genuinely be termed "social" if it fails to incorporate input from both users and civil society in the early design and planning phases. Social design initiatives must ensure that their designs are socially relevant and contextualized within users' needs. To address these shortcomings, it is recommended that both digital and traditional participation methods be utilized to bridge connections between individuals and collaborative entities. Digital participation platforms might particularly benefit from sophisticated geolocation and tracking systems that categorize, prioritize, and empower citizen needs based on diverse criteria (Pak et al., 2017). Such an approach not only addresses the specific spatial needs of different target groups (e.g., by age, ethnicity, gender, or other disadvantaged characteristics) but also anticipates spatial requirements that may change due to seasonal shifts or population fluctuations. By adopting this approach, social design initiatives can proactively respond to evolving needs, enhancing social accountability and ensuring that design solutions are responsive to the social context.

Long-term sustainability

Social design initiatives have reported several barriers to effectively implementing practices, including difficulties in securing funding, a lack of trust and effective communication, and insufficient long-term collaboration among actors, as well as challenges concerning the long-term sustainability of processes (Gürdere Akdur, 2023). Although the basic necessities of vulnerable individuals living in temporary settlements are being met by the government, official reports (The Presidency of Türkiye, 2023) indicate that there is still an ongoing need for spatial facilities, such

as child-centric environments (learning centres, playgrounds), and spatial interventions to address the needs of disadvantaged groups, including the elderly, refugees, disabled individuals, and craftsmen in need of workspace.

Due to the scale of the earthquake damage and losses, the rebuilding and recovery of the disaster zone is estimated to take a minimum of five years. This means that residents affected by the earthquake will be required to live in temporary settlements for an extended period. Furthermore, harsh climatic conditions pose additional challenges for large parts of the disaster zone. Thus, temporary settlements must be continuously upgraded to help vulnerable individuals adapt to their new living conditions. Consequently, long-term social design activities are essential to meet the ongoing social and spatial needs of these communities.

Our analysis also identified another negative consequence of insufficient communication and collaboration between social design actors and vulnerable communities. Government authorities have aimed to centralize disaster relief efforts rather than adopting an open civic approach. This challenge has prevented social design initiatives from conducting long-term, incremental, and evolutionary design activities. Instead, they have been limited to implementing one-off, short-term practices.

Another significant gap observed is the absence of follow-up mechanisms within social design initiatives. Such mechanisms would facilitate the monitoring of design proposal implementations by local communities, assess user satisfaction, and—if deemed necessary—update existing designs or generate new design ideas. Furthermore, there is a discernible need for the development of enduring, sustainable social design strategies that are based on direct communication with citizens and progressively implemented on-site, reflecting a responsive and agile approach.

For optimal outcomes, it is imperative to reconceptualize the traditional understanding of social design. By merging it with the principles of social innovation, thereby transforming it into an open framework. Within such a framework, numerous small, diverse, and participatory social design projects could work collaboratively towards a broader vision and achieve sustainable long-term objectives, as articulated by Manzini and Rizzo (2011, p. 199). In conclusion, we propose the establishment of a 'social design platform' to address the gaps identified in this study. The key capacities of such a platform could be summarized as follows:

- 1. Facilitate spatial production processes: Draw from ongoing site explorations to foster communication among a diverse range of stakeholders—including local inhabitants, public and private entities, and civic initiatives—and integrate broader networks.
- 2. Encourage collaborative development of ideas: Allow for pre-implementation testing with genuine stakeholders to mitigate potential risks in spatial production. This can be accomplished through spatial experiments or pilot studies involving real contributors in the spatial production process.
- 3. Advocate for a Data-Informed, Systematic Approach: Promote a systematic and data-informed approach to spatial production to ensure long -term sustainability.

5. Conclusion

This study aimed to understand the role and impact of social design practices in empowering communities, especially in the context of post-disaster relief efforts. It involved an in-depth analysis of various social design initiatives, their methodologies, and their efficacy in addressing community needs.

The case studies and practices examined in this research highlight a paradigm shift towards the integration of social design in disaster relief. While many initiatives have succeeded in improving living conditions for disadvantaged groups, they have struggled to implement successful participatory design practices. Additionally, the absence of strategies that support long-term sustainability has meant that these initiatives are often limited to one-off, short-term interventions.

This limitation may be due to the fragile and sensitive nature of post-disaster contexts, as well as the lack of clearly identified user groups to involve in social design practices. Through the lens of participatory design and social empowerment, design communities in Türkiye have demonstrated a degree of resilience in the aftermath of catastrophic events. Focusing on the research questions introduced in the study, the conclusions drawn from the key findings can be summarized as follows:

- 1. Limitations in Execution for Social Empowerment: A wide variety of social design initiatives aimed to facilitate social empowerment through design, but they fell short in their execution. None established feedback loops—an essential mechanism for genuine community empowerment. Additionally, they lacked effective cross-sectoral and civic cooperation, leading to limited engagement with public organizations and reducing overall impact.
- 2. Lack of Mediatory Roles: Many social design initiatives functioned as design-driven initiators or facilitators, rather than mediators who could bridge diverse community interests. Limited direct communication with community groups hindered these initiatives from truly understanding and addressing community needs.
- 3. Key Factors for Enhancing Social Design Practices: The study identified three key factors and related sub-factors for enhancing social design practices to empower communities: a) collaborative design across sectors. b) user-focused and socially-contextualized design strategies. c) long-term sustainability.
- 4. Need for a Proactive Cross-Sectoral Social Design Framework: Integrating these elements, a proactive and inclusive cross-sectoral social design framework is required to ensure sustained and coordinated responses rather than isolated reactions. Such an ecosystem can address the genuine needs of affected individuals by fostering collaboration with key stakeholders, including authorities, creative sectors, and civil society.

The limitations of this study primarily lie in the scope of the research, which focused on specific case studies and may not fully capture broader trends or practices in other regions or contexts. Furthermore, we did not have access to on-site and post-occupation data. Future research directions include overcoming the barriers to effective cross-sectoral cooperation for disaster relief and developing strategies for genuine community engagement and empowerment. The proposed ecosystem and the success factors framework are currently being further developed as part of an international research project proposal.

5.1 Constraints, objectives and community agency in long-term and sustainable post-disaster response

The spatio-temporal and dialectical relationship between immediate disaster response and structural transformation emerges as a fundamental theoretical consideration from our analysis. The empirical evidence demonstrates how this tension manifests in divergent organizational approaches: while instrumentalist interventions addressed urgent spatial requirements, organisations pursuing transformative agendas engaged in reconstructing communities together with temporary shelters. This duality suggests a theoretical framework wherein social design in post-disaster contexts must necessarily operate across community engaged and multiple temporal modalities while maintaining internal coherence - a finding that extends beyond mere practical considerations to challenge existing conceptualisations of disaster response methodologies.

Our examination of contextual constraints reveals the implications of institutional structures on social design outcomes. The disparity between design conceptualization and implementation in the revised cases indicates not merely operational inefficiency but rather points to fundamental structural contradictions between centralised governance mechanisms and partici-

patory design aspirations. This finding suggests the necessity of reconceptualizing institutional frameworks to better accommodate the inherent tensions between bureaucratic imperatives and community-driven design processes.

The experiential dimensions of community engagement emerged as a crucial theoretical consideration. The transformation of pragmatic activities - workshops, training sessions, participatory planning - into what we might characterize as spaces of **ontological reconstruction**. The idea of "ontological reconstruction" here refers to reshaping people's fundamental understanding of their world and their place within it. These community activities, when framed as spaces of ontological reconstruction, imply that participants are not just learning or contributing—they are collectively transforming their social reality and fostering a sense of belonging that is more profound and redefined in the aftermath of disruption. This reconceptualization of social design as engaged and living praxis rather than merely spatial intervention offers new perspectives on post-disaster community rehabilitation paradigms.

Perhaps most significantly, the emergence of knowledge democratization practices, exemplified by several initiatives' commitment to open-source methodologies, suggests a paradigmatic shift in disaster response epistemology. This evolution from proprietary to commons-based knowledge frameworks represents not merely a tactical adjustment but rather a fundamental reconceptualization of how design knowledge is created, disseminated, and implemented in crisis contexts.

The examination of organizational objectives reveals a more nuanced reality than simple binary distinctions between immediate response and long-term transformation. Organizations like *KAF Kolektif* and *Afet Sonrası Ortak Yaşam* demonstrated how objectives evolve through practice, beginning with immediate humanitarian response before expanding into broader social fabric reconstruction. This evolutionary pattern suggests that objectives in post-disaster social design should be understood not as fixed endpoints but as dynamic frameworks that respond to emerging community needs and institutional possibilities.

The analysis of community agency presents particularly significant theoretical implications. The transformation of practical interventions into spaces of agency reconstruction - as demonstrated by Herkes İçin Mimarlık (HİM) and Piknik Works - suggests that effective social design must conceptualize community engagement not merely as a methodology but as a socio-spatially bridging intervention. This finding challenges traditional frameworks that position community participation as simply a means to better design outcomes.

Reflecting on Lefebvre's (1991) spatial triad and Markussen's (2017) insights on social innovation, the reviewed cases underscore that spatial design, physical, discursive, and lived spaces merge to facilitate a profound rearticulation of communal identity and agency. Physical spaces, though initially focused on tangible needs, embed resilience within their form, aligning with a broader socio-spatial continuity that connects immediate function to enduring meaning. Discursive spaces, as illustrated in DEF's conceptualization (Kesdi, 2019), transform spatial practices from a technical exercise into an ontological practice. Here, community members, through structured stages of reflection and open-source collaboration, collectively redefine their relationship to place. This synthesis of knowledge and agency repositions post-disaster recovery as an iterative, community-driven re-creation of space, embedding shared meaning and resilience at the heart of the rebuilding process. Future research trajectories can potentially address these theoretical implications by experimenting with hybrid methodologies that can effectively navigate the complex interplay between the agencies of post-disaster spatial practices, immediate crisis response and sustained social transformation.

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Tracing architectural exhibitions in the absence of archives: The case of Taşkışla

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Abstract
Architectural exhibitions — whether manifesting as built environments or theoretical discourses — deepen discussions on the meaning of architecture in retrospective and prospective senses. While this growth parallels academic interest in archival studies and the emergence of institutions dedicated to archiving and exhibiting representations of architectural works, the absence of centralized architectural institutions leads to insufficient, fragmented documentation, limiting comprehensive mapping of relationships. This study explores whether architectural space can function as a memory-collecting "hive-mind," where temporary exhibitions collectively form a dynamic archive, even without a permanent physical repository. The article first examines theoretical perspectives on architectural archives, exhibitions, and schools of architecture. It then analyzes three exhibitions at Taşkışla, Istanbul Technical University's Faculty of Architecture, focusing on architects (Holzmeister, Onat, and Yücel) who also served as educators there. Since Taşkışla lacks a classified, organized architectural archive, no institutional records detail the design, construction, or installation of these exhibitions. Consequently, information was gathered from testimonies, personal experiences, and diverse documents across different media. Employing a grounded theory methodology, the study cross-references the authors' observations with materials from architectural media, generating an implicit body of knowledge organized into a "micro-archive." This approach highlights the significance of ephemeral exhibitions in shaping architectural discourse. Introducing the concept of "the enactment of the archive," it underscores the archive's performativity and agency in restoring and reintegrating relationalities, commonalities, gaps, and overlooked elements in spatial memory and archival practices. In this sense, the article itself serves as both a record and a "letter to the future."

Keywords
Architectural artifact, Architectural exhibition, Micro archive, Taşkışla, Spatial memory.

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1. Introduction

Memory studies encompass not only the rememberers, the remembered, and the forgotten but also the procedures and practices of remembering. Frances Yates explores the evolution of mnemonic techniques by tracing the practices of memory from Simonides of Ceos, credited with the invention of the Memory Palace, to Renaissance thinkers like Giordano Bruno and later scholars such as Gottfried Wilhelm Leibniz. The Memory Palace involves mentally placing images to be remembered within a familiar spatial layout, summoning them later by retracing the imagined space. The chosen mental space serves as a tablet, while the images become inscriptions upon it. The distinct features of the space — its structural elements and differentiating units — correspond to layers of memory, each anchored to an image. In societies where writing had not yet become widespread and where architectural structures continued to serve as primary repositories of cultural knowledge, these spaces functioned as archival vessels for mnemonic practices, hosting images and thereby preserving memory (Yates, 2013).

What happens to the Memory Palace when this necessity fades — when we are surrounded by an overwhelming glut of recordings? How does space manifest itself in different minds, and what images does it carry? Where do these images accumulate, and how do they come together? How should we manage a Memory Palace while it is still in use? Is it possible for it to incorporate its own layers of memory even as its structure undergoes continuous transformation?

As we explore these questions, a unique situation crystallizes where space assumes a binding role, memory oscillates between images and events, and time is perceived as past, present and future, dissolving into each other with varying intensity. This situation aligns with the intricate, cyclical, and mutual relationship between architectural artifacts, archives, and exhibitions. The intricacy of the trifold relationship stems from the interdependence of each concept as a whole and their constituent parts. Architectural artifacts — be they buildings, drawings or publications — emerge through gradual accumulation. As a building's design process involves sketches and models; a publication is shaped by research, drafts, and revisions. Similarly, architectural exhibitions and archives share this multi-dimensional nature. An archival collection, in its entirety, or an exhibition, in its curated form, are both artifacts composed of numerous interconnected elements. All relational objects generated during the architectural process, from documents to physical or digital models, are equally valid as architectural artifacts. The cyclical nature is evident as each step in any design process accumulates its own archive, often becoming the foundation for architectural exhibitions. Architectural practices generate archives, which in turn inform exhibitions, while the curation of exhibitions becomes an essential practice within the field. Moreover, the documentation produced by exhibitions feeds back into the cycle, as these archival records are integrated into further architectural projects. These elements are mutually reinforcing — each capable of assuming roles typically associated with another and contributing to collective growth in a non-hierarchical manner. For instance, if the process of a building's creation is preserved in archives, can the building ever truly vanish from collective memory? Similarly, consider an exhibition about an architect that showcases original materials — photographs, models and drawings — which are later lost or dispersed. Even though the archive of the architect's work is compromised in its entirety, the detailed documentation of the exhibition itself — comprising photographs, catalogues, testimonies, and reviews — can serve as a surrogate archive, sustaining the memory of the architect's contributions. In scenarios where both the original archive and the exhibition are absent or incomplete, might existing architectural structures serve as alternative sources for regenerating these records through new exhibitions or other media? This paper investigates these dynamic interrelationships, highlighting how architectural artifacts, archives, and exhibitions continuously shape

and reconstitute one another in an ongoing cycle of production and reinterpretation.

This study aims to explore the complex relationship between archival science and architectural exhibitions by examining the case of Taşkışla, the campus of the Faculty of Architecture at Istanbul Technical University — a prominent educational institution that hosts exhibitions yet lacks an indexed archive. Commissioned by Sultan Abdülmecid I and designed by the British architect William James Smith in 1854, Taşkışla has undergone numerous transformations over time. In 1944, following the enactment of the Universities Law, Yüksek Mühendis Okulu [School of Engineering] was transformed into Istanbul Technical University, and Taşkışla was allocated to this newly autonomous institution. A significant restoration led by Emin Onat — the founder and first dean of the Faculty of Architecture — and Paul Bonatz in 1950 marked Taşkışla's establishment as the institution's home. Taşkışla functions both as a school of architecture and as a repository of institutional memory, as evidenced by the experiences of its academic community. With a layered history of transformations — from a medical school to military barracks, a hospital, and eventually an academic institution — it embodies a complex interplay of historical events and architectural narratives. An accessible institutional archive could provide a more rigorous analysis of the socio-cultural dynamics at Taşkışla by elucidating the interactions among its various stakeholders and activities over time. In the absence of such a centralized archive, however, it is possible to adopt an alternative approach by constructing "micro-archives" — focused collections of minor narratives, dispersed documents, and the gaps between established records. This strategy offers the potential to enrich the scholarly framework of an institution renowned for its enduring contributions to research and education.

2. Methodology

The methodological framework of this study employed the qualitative "grounded theory" approach (Glaser & Strauss, 1967), as it enables architectural researchers to explore the theoretical reach of archival practices in exhibition design and spatial memory formation (Creswell, 2012; Bollo & Collins, 2017). This approach is particularly suited for archival research studies in architecture, as it allows for the emergence of patterns and conceptual categories from the collected data rather than relying on predefined theoretical models (Allen & Davey, 2018).

Building on existing scholarship related to architectural exhibition archives, this methodological framework underpinned the processes of data collection, conceptual analysis, and the formulation of theoretical constructs. The data was collected by recording the observations and experiences of the authors, in addition to archival materials, with the aim of capturing both institutional perspectives and personal recollections and memories (Groat & Wang, 2013). The primary criterion for selecting the three exhibitions at Taşkışla as case studies for this article was their distinctive memorability. In addition to the authors' direct engagement with the architects featured in the exhibitions — either through personal interactions or indirect knowledge transmission — the spatial context of the exhibitions within Taşkışla, the embodied experiences of the visitors, and the unique exhibition materials and apparatuses that distinguished them from other exhibitions in the same venue all played a crucial role in the exhibitions' memorability. Furthermore, the associated events and side programs related to the exhibitions enriched the process of recollection. Given the lack of a centralized or organized architectural archive within the Taşkışla institution, the documents pertinent to the selected exhibitions were sourced externally. These included photographs, exhibition catalogues, design sketches, and written narratives, which were collected primarily through first-hand exposure and supplemented by various media outlets, such as social media, architectural journals, and personal archives.

The collected data were transcribed and analyzed using "conceptual content analysis" methods (Krippendorff,

2018) to corroborate and interpret the research findings. This analytical process involved the systematic identification of core themes, conceptual constructs, and distinctive viewpoints expressed by exhibition organizers and visitors. The emergent themes were then cross-referenced with archival materials to reveal the intellectual, cultural, and experiential dimensions of these exhibitions within the broader context of the ITU School of Architecture's historiography and memory practices.

By synthesizing multiple data sources and perspectives, the study constructed a "micro-archive" that serves as both an analytical tool and a means of reintegrating overlooked or fragmented aspects of spatial memory. The application of grounded theory further facilitated the development of the concept of "the enactment of the archive," underscoring the performative and dynamic nature of exhibition-based archival practices.

3. A conceptual triad: When architectures become archives become exhibitions

"There is no 'architect'; there are 'architects.'" The third chapter of Uğur Tanyeli's book *Yıkarak Yapmak: Anarşist bir Mimarlık Kuramı İçin Altlık* [*Building by Destroying: A Foundation for an Anarchist Architectural Theory*] begins with this aphorism, emphasizing the plurality inherent in the profession. Titled "Redefining the Profession: The Roles of Architects in a Metropolitan World," the chapter outlines various roles that architects take on, including "the architect as a designer, a business person, a worker, an academic, a star/celebrity, an opinion leader/activist, and a writer/theorist". The title and statement emphasize the importance of defining the roles assumed by the actors in the profession and highlight the dynamics the metropolitan world is subjected to (Tanyeli, 2017). Indirectly, it also implies that there is no singular architecture, but rather architectures. This plurality and interconnectedness remind us that any fundamental constituent of the profession can only exist in new forms. It is possible to say that these roles assigned to architects are not limited to those mentioned above and they are not fixed either. An architect can embody one or several of these roles and may also discover alternative ones, especially in the contemporary world. Building on the earlier discussion of architectural artifacts, one could argue that the outputs of these various roles — whether buildings, publications, or other forms — accumulate and occasionally transform into new artifacts: archives and exhibitions. If architectural archives and exhibitions are considered architectural artifacts as well, could we extend Tanyeli's list to include the roles of the 'architect as archivist' and the 'architect as curator'? If such roles exist, what kinds of architectures, archives, and exhibitions do these architects produce?

This interplay and interchangeability between architectures, archives, and exhibitions suggests an inherent connection, forming a loop that defies a hierarchical structure. Their relativity allows for distinct vantage points, fostering comparisons that emphasize both commonalities and distinctions. Nevertheless, this imaginary loop also creates a closed circuit, a boundary. In order to elaborate on what falls inside and what stays outside of it, it is crucial to examine the archival turns and tendencies in architectural exhibitions in detail; along with their possible reflections on architecture through a case study focuses on Taşkışla.

3.1. Archive as a scientific field

In addition to their power over the construction of history, archival studies inform critical inquiries across various disciplines and enable new maneuvers for each. In architecture, despite an acknowledgement of the importance of the archive, it is frequently regarded as a closed, finite entity — a record of completed narratives. However, an archive should not be understood merely as a collection of finalized materials; rather, it functions as a dynamic reservoir of information in which ongoing processes and relationships are continually inscribed and open to reinterpretation (Wigley, 2005).

This approach resembles Derrida's deconstructivist perspective. According to him, deconstruction is not about demolishing what has been constructed but rather an attempt to understand the act and mechanism of construction (Derrida, 1997). His focus on act of construction as a process of becoming also explains his interest in the archive and his initial attempt to get to the root of what it means. Derrida begins his influential text "Archive Fever" by examining the etymology of the word "archive" in order to contribute to the interdisciplinary discourse surrounding archival studies. Starting from the Latin word "arkhe," he emphasizes the meanings of "origin" and "command" that are embedded within the archive. The archive exists at the intersection of the words "arkhon," which refers to the important documents hosted within it, and "arkheia," which refers to the hosts of the arkhons (Derrida, 1995). The multiplicity of meanings, encompassing both the spatial and the collected aspects, allows the concept of the archive to emerge as both a vessel and of its own contents, thereby enabling self-preservation. This linguistic fluidity invites the incorporation of new concepts into this evolving discourse. The convergence of the conceptual and spatial aspects in the act of preservation generates an internal/external tension within archives, creating a topography that allows for the perception of surface and depth, accessible from different locations and providing access to different versions of time.

While archives have existed in supporting forms for centuries, the establishment of archival science as an independent discipline is relatively recent. The lack of a standardized approach, the need for a systematical self-examination and assessment within the profession gave birth to studies that shaped the field over time. First of these key studies is the Dutch Manual for the Arrangement and Description of Archive, written by Samuel Muller, Johan Feith, and Robert Fruin, in 1895. This seminal book, which establishes the foundations of archival practice as a scientific field is often referred as "the bible of the archivist" with an overall approach to the archive as "an organic whole, which cannot be torn apart". The main objective of the manual was to determine the basic requirements for the classification, organization and definition of the archive (Muller et al., 2003).

Almost thirty years after the Dutch manual; Sir Hilary Jenkinson came forth with another guide book — A Manual of Archive Administration — and elaborated on the discussion. As opposed to solely practical methods in the Dutch Manual, Jenkinson dealt with the question of selection. He notes that archives are institutions that harbor evidence, and archivists are just keepers of these institutions. If archivists decide on the selections of the materials and interfere with the intentions of the creator of the archive, the evidential quality of the archive disappears, and the informational premise of the institution fails (Jenkinson, 1922).

While these two positivist perspectives were significant for archival science to establish its foundation and independence, they were challenged with regard to certain further needs. In 1956, T. R. Schellenberg, objected to the "archive as an organic whole" approach by the Dutch Manual, and "archive as evidence/archivist as keeper" limitation defended by Jenkinson. The amount of the documents accumulated by official institutions in America as a result of the Great Depression, and World War II, led Schellenberg to come up with the "appraisal theory" (Schellenberg, 1956). This selection based theory considered records and the archive as two different things and accordingly divided their values in two. The primary value, as he suggests, is akin to Jenkinson's perspective, which emphasizes the significance of archives in terms of their value as evidence of their creator's actions. However, archives also hold a secondary value for researchers and scholars. According to Schellenberg , an archive should be regarded as "a subset of records carefully preserved by the archivist to create space for diverse and extensive future research" (Cook, 1997).

Although Schellenberg's approach is based on a selective and, hence, productive manner, it still carried a statist perspective. However, the so-

cietal needs forced archival science to go through another shift. The interest of deconstructivist philosophers like Jacques Derrida and Michel Foucault at the beginning of the second half of 20th century, triggered a self-criticism within the field. Their interest in the construction of the archives and power dynamics behind them raised question of inclusiveness. Within this critical atmosphere, Hans Booms suggested a model that is more democratic and responsive to society at large. His main thesis was that the archival institutions should reflect the public opinion and shape the archives accordingly (Booms, 1987). Helen Samuels also developed the concept of relational thinking between institutions and the public. According to Samuels the institution/public relationship, in terms of the appraisal process still maintains its own pitfalls and archival science should extend its course towards more diverse and multi-institutional levels. Her emphasis on the importance of generating institution-specific documentation strategies, combining multiple archives and appraisal activities, utilizing oral histories and personal manuscripts, are reminiscent of a Canadian tradition called the "total archive" (Samuels, 1986).

This polyphonic approach opens a forum for micro-narratives and aims toward a more permeable archive that belongs to and represents the greater society. As Terry Cook summarizes: "Community is the key concept, then, of the fourth archival paradigm now coming into view, a democratizing of archives suitable for the social ethos, communication patterns, and community requirements of the digital age" (Cook, 2020).

While influential figures in archival studies extend beyond those mentioned thus far, their contributions provide a foundational overview of the field's evolution. The shift from an untouchable sacred entity to the duty of preservation; from questioning the appraisal to a critical research area, underlines the importance of constant deconstruction. As in Peter Burke's definition of "polyphonic history", multiplication of voices, languages, lines, and stories in opposition to a monody and singularity allows for the multiplication of gazes from present to past. This plurality functions as an integrative mechanism linking diverse viewpoints, practices and representations (Burke, 2010). In light of this integrative capacity, is it possible to expand the architectural terrain and develop a new perspective with regard to archiving architectural artifacts?

3.2. Exhibition as architectural research

The evolution of archival science prompts a quest for fresh perspectives and public engagement. This context sets the stage to explore the transformative potential of exhibitions. Exhibitions, meticulously curated to display objects in a deliberate sequence, often evoke meanings beyond their individual elements. In fields such as art history and museology, exhibitions serve as more than showcases; they are regarded as tools for research (Herle, 2013). Similarly, in architecture, exhibitions can be envisioned as spaces for architectural research. They offer arenas where the interaction between physical structures and societal contexts can be explored, fostering novel ways to generate knowledge and facilitate shared collective experiences.

Since architecture is a discipline that works and presents itself through different media, and exhibitions are such spatial and experiential events, their inevitable encounter throughout history deserves a special attention and investigation. As Beatriz Colomina points out, while artistic practices welcome spatial gestures and interact with the spaces where they are located, architecture's leakage into museums should be a part of this conversation too. Furthermore, she proposes: "If modern architecture is exhibition, you can also argue that the exhibition of modern architecture is a form of architecture" (Colomina, 2013). Reviewing existing classifications could offer an insight in order to fully comprehend the scope of exhibitions within this particular production model.

According to Adrian Forty, architectural exhibitions should be a distinctive medium so as to represent archi-

tecture within a singular context and establish a unique way to communicate where other mediums cannot. To clarify this requirement of autonomy Forty classifies them into two main categories: "live architecture exhibitions" and "representational exhibitions". By live architecture exhibitions Forty means a one-to-one scale presentation that allows visitors to walk into and around the built construction. He divides this category in two as "permanent" and "temporary' exhibitions". Permanent live architecture exhibitions can be composed of replicas, or as disassembled and reassembled original buildings in different locations, or as they exist in the form of a neighborhood or cluster. On the other hand, temporary real-scale exhibitions refer to fairs and pavilions, periodical events that temporarily showcase real-scale buildings. The other category suggested by Forty are called representational exhibitions and utilize the relational media including models, drawings, photographs rather than the buildings themselves. The division within this category continues as "polemical representational exhibitions" and "encyclopedic exhibitions". While the former stands out to alter perceptions and receptions, the latter aims to acquire a knowledge oriented glimpse regarding "the architecture of a particular region, period, group of architects or a building type". Encyclopedic representational exhibitions also come within two sub-categories: "monographic exhibitions" and "thematic exhibitions". Monographic exhibitions focus on the work of an individual architect and provide retrospection. Thematic exhibitions similarly do that by gathering the works of several architects around a theme (Forty, 2008).

While Forty's classification system considered both form and content as a variable, another proposition was made by Jean Louis Cohen based solely on the content of such exhibitions. Lea-Catherine Szacka's analysis of the first Venice Biennial refers to them both and sorts Cohen's rather tacit classification that comes in a list format (Szacka, 2012). In Cohen's understanding, the first group in this list includes exhibitions presenting the work of young architectural practices in small galleries or biennials. The second category focuses on the forgotten work of architecture or an unnoticed fragment of a great master's practice. The third example highlights exhibitions that serve as platforms for dialogue, centering on new materials and prompting questions about the space itself. The fourth category includes the exhibitions that are sourced from various disciplines and cross-cultural encounters. The fifth takes in exhibitions that focus on the urban condition and cultural scene of a single city. The sixth encapsulates the exhibitions that served to institutionalize a particular generation or group of architects by marking a milestone within the history of a contemporary issue. The seventh category highlights the exhibitions that cause "a paradigm shift in the contemporary theory". The eighth one includes exhibitions that revolve around a theme or inquiry to inform the general public or future practitioners. Lastly he draws attention to exhibitions that bear "an agenda of critique, or even denunciation" (Cohen, 1999).

Despite the differences in these two taxonomies there is a shared concern regarding the exhibition as a medium and its potentiality. According to Forty architecture is "far from being a single medium activity". Building, drawing writing, speaking, photography, film and exhibitions occupy an equally important place for architecture to operate. Further he explains:

> An exhibition is a medium of its own – it is not a book, it is not cinema, it is not a gallery for the display of works of art. To treat it as one of these is an abuse, for exhibitions should set out to achieve what could not be achieved in any other medium, and show what could not be apprehended through any other means (Forty, 2008).

Similarly, Cohen considers the architectural exhibitions as "part of a single cultural production" and draws attention to their importance as he states: "Even the most modest genre of architectural exhibition, the straightforward display of a newly acquired or granted archive, though lacking in spectacular ambition, still makes a valuable contribution to furthering research" (Cohen, 1999).

These two attempts to map the way architectural exhibitions are made and to address the potential and motivation behind them align with the democratization of architectural culture. Emerging in the 1960s, the demand to liberate architectural education from the monopoly of architecture schools triggered a proliferation of museums and centers of architecture. This search for alternative encounters around architectural culture and the public resulted in a rise in exhibition making alongside other relational productions including publications, contests, and symposiums. Thus, institutions dedicated to the preservation of architectural heritage hold a pivotal role as catalysts for molding architecture into a critical practice (Okumuş Solmaz & Doğrusöz, 2022). However, in the absence of such specialized establishments, exhibitions hosted within an architectural school take on an even more significant role. The "METU CAMPUS EXHIBITION: Representing Itself" curated by Ayşen Savaş provides a notable example in this regard. In addition to presenting the characteristic of "a distinctive product of Modern Architecture" this outcome of an ongoing research project has "initiated a process of archiving in which 'archivization' is seen as a way of conservation" (Savaş, 2019). Because exhibitions not only contribute to further research, as Cohen suggests, but also serve as the very foundation of that institution's archive. Given this context, how can we conduct research in a school of architecture that host exhibitions but doesn't archive them?

3.3. A School of architecture as an artifact

The establishment of the International Confederation of Architectural Museums (ICAM) in 1980 served to increase the reputation of institutions dedicated to the museological aspects of architecture. The establishment of institutions such as the Canadian Centre for Architecture in Montreal (1979), the Deutsches Architekturmuseum in Frankfurt (1979), the Architekturmuseum in Basel (1984), and the Netherlands Architecture Institute in Rotterdam (1988) has led to a research-oriented exhibition-making process (Carter, 2012). In Türkiye, there are institutions that deal with architectural archives and exhibitions on a specialized scale, such as Salt (2011), Istanbul Research Institute (2007), and Vekam (1994). However, there is no centralized museum that systematically preserves and presents architectural production in Türkiye. It is also notable that while over twenty-five universities with architectural collections or libraries are members of ICAM, none of these are from Türkiye. This raises questions about the implications of this absence and whether it should be a cause for concern.

In "Varsity Letters," Helen Samuels delves into the evolving landscape of university archives and their role in documenting modern academic institutions. Samuels argues for a paradigm shift in documenting modern academic institutions, emphasizing "context before content" in archival practices. She argues that this approach allows archivists to capture the complex nature of today's universities more effectively. Samuels criticizes the traditional categorization of colleges and universities based solely on teaching, research, and public service missions, arguing that these descriptors are outdated for contemporary academic institutions. Instead, she proposes a nuanced framework that identifies seven essential functions of universities, including "Confer Credentials," "Convey Knowledge," "Foster Socialization," "Conduct Research," "Sustain the Institution," "Provide Public Service," and "Promote Culture" in which she explores the institution's role as a collector and disseminator of culture through museums, libraries, and archives (Samuels, 1998).

While this manifesto-like list of functions depicts the fundamental aspects that make up a modern academic institution, Samuel emphasizes that they will appear differently at different universities. In this context, architecture schools serve as environments where architectural knowledge is continually regenerated, functioning as composite artifacts that integrate diverse materials produced by various actors over time.

The motivation behind our research is driven by this proposition. Beyond the terminologies that architecture frequently adopts from adjacent disciplines, two transformative factors significantly deepen the relationship between architecture and archives. These are the fragmentary interpretation within a larger context and the reconstruction of the past — breaking apart dominant meta-narratives and reconstructing them through smaller, nuanced narratives. Defining a scientific field also necessitates understanding the contextual relationships of the archive and situations we may encounter in the specific context of Türkiye, even more so in Istanbul, and particularly within the context of a well-established architectural school. The last part of this triad, architectural schools, is important because it constructs a context that integrates the previous two areas. Architectural schools, which academically and scientifically, define/ delineate/ construct knowledge and facilitate the sharing of this knowledge within society, act not only as hosts to exhibitions but also as mechanisms that embody the very reason for the existence of these exhibitions. They host the practice of architecture by experimenting. In doing so they host the archive and produce its materials. They also mount exhibitions and archive them. How does this active and passive structure, which transforms architectural schools into an actor that utilizes the archive, provide a reading, especially when considering monographic exhibitions related to the real people who constitute that institution?

4. Past / current / upcoming: Taşkışla as an archivescape

For the purposes of this study, the term 'artifact' is used in a broad sense to denote an architectural school not only as a physical structure, but also as an institution whose history, activities and practices collectively embody architectural knowledge. Taşkışla occupies a unique position in this respect. As an architectural object, almost 170 years old as of today, it bears its own history. Designed by British architect William James Smith, it was initially planned as a medical school (Mekteb-i Fünûn-i Tıbbiyye) and the construction started in 1847. In 1853, while it was still under construction, it became military barracks instead of a hospital. The transformation was completed in 1854 under the supervision of William James Smith, and the building was renamed Mecidiye Kışla-i Hümâyûnu [Mecidiye Imperial Barracks]. During the Crimean War (1853-1856), Taşkışla served as a hospital for French soldiers. After the war, it remained empty and neglected for a while, until it was reopened as barracks in 1862. Architects Raimondo D'Aronco and Alexandre Vallaury repaired the building following the 1894 earthquake, but it suffered damage during the 31 March Incident in 1909. It was also used as a hospital during the Balkan Wars until a fire in 1914 rendered it unusable. Following all of this damage, repair, and transformations, the most comprehensive restoration occurred when Taşkışla was assigned to Istanbul Technical University. Led by Emin Onat and Paul Bonatz, the restoration was completed in 1950 and Taşkışla started to welcome future generations of architects. At the start of the 1960s, the university sought to improve its infrastructure to accommodate future growth by planning a larger campus in Ayazağa, in addition to its current urban buildings. Despite having no intention of abandoning Taşkışla, a profit-driven conflict emerged concerning the valuable urban site. While educational activities were ongoing within its walls and Ayazağa Campus was still under construction, governmental entities and private investors both vied to convert Taşkışla into a hotel. Fortunately, due to the steadfast determination of faculty members and students, spanning nearly a decade, Taşkışla managed to preserve its unique identity (Kulaksızoğlu, 2010). Besides its being one of the incubators of architectural formation in Türkiye, a symbol of holding the ground; with its long halls, high ceilings, voluminous staircases, it presented itself as a monument, a landmark, and an object to be exhibited.

In addition to its role as an architectural exhibit itself, Taşkışla also serves

as a versatile venue for exhibitions within educational institutions. Over the years, numerous architectural exhibitions have taken place at Taşkışla. The itinerary exhibitions opened doors to architects and architectural approaches from diverse global regions. Exhibition projects by local practitioners served as a promotional interface. Organized by the Association for Architecture Education, the "Project Awards for Architecture Students" exhibitions showcased selected works from the annual competition, featuring projects produced throughout the year in architectural design studios. These exhibitions fostered enduring connections among architecture students from across the country. Monographic exhibitions, dedicated to masters, offered a renewed lens to explore their body of work. However, the absence of an easily accessible archive poses a challenge when it comes to thoroughly exploring the different items in this exhibition timeline. While the absence of an architectural museum is already causing gaps in spatial memory, how can we remember the exhibitions that promise to remember the people who transformed and were transformed by Taşkışla? How can we effectively archive a venue that itself serves as an exhibit? How might we interconnect these recurring appearances and disappearances?

Thinking about the exhibitions that transform Taşkışla into an archivescape, where everyday life is interwoven with architectural education where the memory of the past is carried into the present, where the fragment of yesterday quickly flows into the future — acts as a guide in search of the answer to this question. We would like to deepen the discussion with three exhibitions dedicated to Clemens Holzmeister (1886-1983), Emin Onat (1908-1961), and Atilla Yücel (1942-2018) three significant members of ITU Faculty of Architecture, hosted by Taşkışla at different times.

4.1. "Clemens Holzmeister: Çağın dönümünde bir mimar"

The exhibition titled *Clemens Holzmeister: Çağın Dönümünde Bir Mimar* [Clemens Holzmeister: An Architect at the Turn of an Era], paid homage to a significant figure in both Istanbul Technical University and Türkiye's modern architectural heritage. It was initiated by the Embassy of Austria and the Austrian Cultural Office in Istanbul, in collaboration with Middle East Technical University. When the Dean of the Faculty of Architecture appointed Aydan Balamir as coordinator, she defended that in addition to METU, ITU and other universities should be part of this collaboration and invited researchers and academicians to take part in the event (Balamir, 2010).

It was inaugurated at the Hall of Honour in the Grand National Assembly of Türkiye in Ankara — a building designed by Holzmeister, and took place from October 2nd to October 14th, 2001. Subsequently, it was showcased at Çankaya Contemporary Art Gallery in 2001 in Ankara and Dolmabahçe Art Gallery in 2002 in Istanbul. From 10th to 15th April 2003, the exhibition remained open at the entrance hall of Taşkışla before being exhibited at Vienna Technical University and the 6th International Biennale of Architecture in São Paulo in 2004. As seen in the installation views, the exhibition's success couldn't be replicated in every location as effortlessly as it was in the Parliament and Taşkışla, mainly due to spatial limitations. Nonetheless, it can be argued that the exhibition's movement across various sites undeniably left a lasting imprint on the memories of a wider audience and contributed significantly to its integration into a global network (Balamir, 2010).

The exhibition aimed to present Holzmeister's life and work in a thematic and chronological manner. The inclusion of a spiral exhibition element, designed by architect Ahmet Özgüner, allowed for a seamless viewing experience without divisions, providing a unique encounter for visitors. The interior surface of the spiral showcased his personal life within a historical context, while the exterior surface delved into such themes as "Architecture of Power," highlighting his designs for state buildings in Ankara as a special category associated with the construction of a capital. The "Architecture of Faith"

section presented his iconic responses to religious projects, "Architecture for Performance" examined his designs for theater buildings, and "Architecture for Daily Life (and death)" explored houses designed by him. In addition to the spiral design, his landscape and stage paintings were displayed on the walls. During the Taşkışla section of the exhibition, a two-day symposium was held, resulting in a comprehensive book edited by Aydan Balamir (Balamir, 2010). Given Holzmeister's pivotal position as an architect of numerous governmental buildings in Ankara, his role as a teacher at Taşkışla, and his connection to Austrian architectural heritage, an extensive collaboration was achieved. This collaboration drew on contributions from multiple archives and institutional support to generate new materials, and the coordinators' meticulous and inclusive approach, which exemplified both site-specific and inter-institutional methodologies highlighted by Samuels. The result was a memorable and enriching experience for visitors. The time dedicated to creating the book and its outcome underscored the potential of archives and exhibitions. The detailed explanation of the process itself forms another archive, expanding upon the existing one.

4.2. "Emin Onat: Kurucu ve mimar"

The scope of exhibitions can be further exemplified by another notable one organized seven years later. The Chamber of Architects' Istanbul branch and the Faculty of Architecture at ITU collaborated to present an exhibition, to commemorate Emin Onat, the first member of the chamber and the first dean of the faculty at his 100th birthday. The exhibition, titled *Emin Onat: Kurucu ve Mimar* [Emin Onat: The Founder and The Architect], took place in the hall named after him at Taşkışla from December 25th, 2008 to February 17th, 2009. In the introduction of the exhibition catalogue, the curator, Afife Batur, explains her approach and the challenges she faced. According to Batur, the exhibition was designed as a triptych, reflecting Onat's main identity traits as an architect, an educator, and a vibrant individual. The personal aspects of Onat's life and his social and cultural milieu were presented through panels hanging from the ceiling. To showcase his professional life, a megaron, which is also the logo of the Chamber of Architects, was chosen. The interior surface of the megaron showcased his work as an educator, while the exterior displayed his architectural projects. Batur identified the two key issues she encountered while designing the professional parts of the exhibition. The first was the emancipation of Onat's architectural legacy from its being overshadowed by his association as the designer of Anıtkabir, the mausoleum of Atatürk. The second issue was the lack of original materials due to a fire that destroyed Onat's studies. While Batur expressed hope that the exhibition would overcome the first concern, the absence of a comprehensive inventory of Onat's works posed a larger challenge. Therefore, the exhibition presented a limited number of original drawings alongside reproduced scale models, complemented by documents sourced from personal archives and institutions that had intersected with Onat's professional journey (Batur, 2009).

Despite the challenges highlighted by Batur in setting it without extensive documents, the exhibition stands as a tribute to the life and works of a significant figure in Turkish architectural culture. It also serves as a platform to highlight his invaluable contributions within the institution he played a was instrumental in shaping. The exhibition design was also aimed to attune with his architectural approach and personality (Batur, 2009). However, neither the documents used in exhibitions, nor the documentation of the exhibition are available for examination and the catalogue does not provide any additional material. Considering that the exhibitions are an opportunity to rethink what is there and what is missing and what could be restored, it is vital to look for accessibility. Or as Emin Onat puts it: "Architecture is a living history, and history unfolds within these creations" (Onat, 1961).

In 1945, when the faculty was founded, Taşkışla was in a very derelict state and only in 1950, when a

block was restored, did educational curricula begin. In today's Taşkışla, apart from the hall named after Emin Onat and his bust at the entrance of the dean's office, there is no mnemonic reminiscence that students encounter by name. While the exhibition was not intended to be permanent, preserving and transferring the knowledge it generated could provide valuable insight for new generations of students with respect to the foundational figure who brought Taşkışla into existence. Furthermore, through the "total archive" perspective, Taşkışla itself, along with its archive and exhibitions, can still be seen as an extension of Onat's legacy. His foundational role invites us to consider the building and its associated records as part of an ongoing narrative of his architectural contributions.

4.3. "Atilla Yücel: Mimar, akademisyen, yaşam ustası"

Lastly, in 2019 at the first anniversary of his death, Atilla Yücel was commemorated with a meeting and an exhibition titled *Atilla Yücel: Mimar Akademisyen Yaşam Ustası* [Atilla Yücel: Architect, Academician, Master of Life] at Taşkışla, where he spent most of his life first as a student and then as a professor. Initiated and organized by his former students, colleagues and friends Funda Uz and Belkıs Uluoğlu, designed by his son Cem Yücel and counseled by Sait Ali Köknar the exhibition remembered and introduced Yücel's graceful personality and production output. The fact that Yücel's archive was already indexed when he was alive significantly reduced the time of the preparation process and the exhibition was ready within a few weeks (Yıldırım, 2019).

Located in the Hall 109 the exhibition focused on the four periods of work in the life of Atilla Yücel and represented them with four vertical islands and an additional horizontal island presenting snapshots from his academic and personal life. "Modernin İçinde" [Within the Modern] represented his relationship with Le Corbusier and modernism. "Bağlama Yolculuk" [Journey in Context] highlighted his travels and effort to uncover the value of the place. "Yerin Yeni Sesi" [The New Voice of Place] showcased his reinterpretation of formal relationships in the local context through new materials. "Yalnız Melez" [The Lonely Hybrid] represents his mature phase, in which where he combined the local contexts with new techniques embraced by modern approaches. The final section, "Olması Gerekenin İçinde" [Within What Should Be], reflected the tension between market conditions and architectural requirements in his production during the 2000s (Uz & Köknar 2019).

As highlighted by Uluoğlu and Uz, the primary objective of the exhibition was to capture the diverse and inspirational nature of Atilla Yücel. Unlike previous exhibitions, this event was characterized by the active participation of individuals who had personal connections with Yücel or who worked closely with him and illuminated his

Figure 1. *Exhibition tag for "Clemens Holzmeister: Çağın dönümünde bir mimar".*

own relationship with his archive (Yıldırım, 2019). This collective effort, not only showcased the links between multiple archives unveiling part of an archivescape but also transformed the exhibition into a versatile and inspiring experience. It served as a platform for those who never had the opportunity to meet Atilla Yücel in person, offering them a chance to be inspired by his life and legacy.

4.4. Beyond the traceability: A discussion

Exemplifying the Memory Palace technique discussed earlier, a walkthrough of Taşkışla, reveals how the building itself functions as a mnemonic repository that encodes and preserves layered historical and cultural narratives. At the main entrance, the site evokes its storied past — for instance, recalling the spot where Emin Onat once photographed with the first students of the ITU Faculty of Architecture. Upon entering, a grand halo greets us in the entrance hall — with the Holzmeister exhibition perfectly fitting into the space, as it did within its original location at the Parliament. Moving left, we traverse the corridor leading to a flight of stairs. If we were to go to the faculty archive located on the basement floor, we would pass Habitat Hall, named after the Habitat II Summit, renovated to host an exhibition. But the archive is inaccessible. We ascend to Venus Hall, which houses part of the Emin Onat exhibition. Continuing through Sinan Hall, panels suspended from the ceiling guide us past a life-sized standee of Onat, which almost every faculty member has a photograph with. Descending down the stairs, we encounter the multifaceted Atilla Yücel Exhibition in Hall 109, which inviting exploration without a set sequential order.

Figure 2. *Exhibition tag for "Emin Onat: Kurucu ve mimar".*

This recurring cycle of spatial transformations highlights the continuous evolution of Taşkışla as both a venue for exhibitions and a living repository of architectural memory, inviting ongoing reinterpretation and the reconfiguration of its multifaceted identity. By consolidating dispersed archival materials into standardized exhibition tags — including information on contributors, locations, and photographs — these new records not only preserve the memory of Taşkışla's evolving identity but also create an easily accessible archive for further research, as illustrated in Figures 1–3.

The presence of additional documentation pertaining to these exhibitions would serve to enhance the visual impact of the images. This would also facilitate communication with the past thereby enabling the acquisition of knowledge from it. These three archival exhibitions revolved around three significant figures with connections to Istanbul Technical University, illuminating the opportunities and obstacles within the expanded field of architecture. Their location in Taşkışla, their representation in various publications, and whether they are exhibited elsewhere or not, all play significant roles in shaping the collectively shared spatial memory.

Although the scale and resources allocated to the Holzmeister exhibition are incomparable with the others, one of the primary reasons for this disparity is the existence of a comprehensive archive in Austria and the production of new materials specifically for the exhibition. The themes presented in the exhibition maintain their distinctiveness while remaining interconnected. The cohesive and guiding nature of the exhibition's form establishes a dynamic interplay between the internal and external elements. Positioned in the entrance hall of Taşkışla, this installation was impossible to miss for anyone entering the building. Furthermore, the inclusion of installation views from different locations as dividers at the beginning of chapters in the book offers valuable insights into the spatial experience.

While the exhibition dedicated to Emin Onat distinguishes his personal and professional life sharply; it constructs a narrative that unfolds in episodic fashion. However, the accompanying publication appears constrained by the format of a book rather than fully exploring the exhibition's spatial dynamics. The repetition of panel designs in the pages and textual content in the catalog reduce its ability to function as a comprehensive archive or to capture the true essence of the exhibition experience. Another spatial challenge with this exhibition is its location. Unlike the exhibitions of Holzmeister and Yücel, which were placed on the ground floor, Onat's exhibition was situated on the first floor, which made it somewhat difficult for visitors to locate it or stumble upon it by chance, since the way an exhibition is encountered and experienced is also related to spatial memory. Nevertheless, despite these obstacles, and even without original archival materials, the exhibition effectively reflects and preserves a limited portion of Onat's significant legacy, reintegrating it within Taşkışla.

The classification of Atilla Yücel's archive while he was still alive is evident in the exhibition dedicated to him. The exhibition design reflects an organic and interconnected narrative. Contributors explain that they made this decision to be "less didactic and easily accessible" (Uz & Köknar, 2019). The design of the exhibition setting also carries an openness that is consistent with this narrative, allowing a sense of lightness and multiple routes of exploration. While it does not compile a publication that covers the content of the exhibition, the 62nd issue of Betonart magazine, published in October 2019, provides an editorial response to the curatorial concerns emphasizing Atilla Yücel's versatility. It also serves as a poetic extension to the exhibition where personal visual materials are shared and stories about Atilla Yücel are heard. We may not have access to these aforementioned three architects' archives, their relationship with ITU and Taşkışla but the archive of these exhibitions born from those authentic archival materials could construct one, to make new connections, extending into new fields, open for revisitation.

Table 1 assembles the data obtained from the separate examination of exhibition elements in previous sections

Figure 3. *Exhibition tag for "Atilla Yücel: Mimar akademisyen yaşam ustası".*

Table 1. *Comparison of exhibitions.*

	Criterion	Exhibition 1: C. Holzmeister	Exhibition 2: E. Onat	Exhibition 3: A. Yücel
Authenticity of the Documents	Originality of Exhibited Materials	High originality due to genuine documents sourced from reliable archives	Low originality due to limited set of surviving originals	High originality due to existance of original documents and personal materials
	Generation of New Exhibition Materials	Institutional collaboration enabled the generation of additional documents	Reproduction of scaled models aimed to bridge archival gaps	Pre-indexed archive of Yücel allowed access to all exhibition materials
Theoretical Framework	Narrative Organization	Thematic and chronological narrative	Thematic and chronological narrative	Thematic narrative
	Installation Concept	Employed a dual-narrative mode of display without seperating personal life and professional works	Employed a dual-mode of display seperating personal life and professional works	Employed a non-linear, less didactic, and easily accessible "island" format.
Design of the Exhibition	Spatial Layout	A spiral design to reflect four themes about his professional works on the outer surface, personal life on the inner surface. Additional setting for landscape paintings	Megaron plan scheme to reflect architectural projects on the exterior surface and educational works on the interior surface. Additional hanging panels to reflect personal life	Four vertical thematic islands to reflect professional works and an horizontal table for his publications and personal documents
	Venue Sensitivity	The design excelled in Taşkışla's spacious entrance hall, making it impossible for visitors to miss	Extending from a corridor to a hall, the exhibition provided an expansive spatial experience; yet, its first-floor location posed challenges to visibility	The 109 Hall on the ground floor supports the dynamic approach and fosters serendipitous encounters
Dissemination / Echoes	Reach and Impact	Exhibited at multiple venues, reaching a broad international audience	Exhibited only at Taşkışla	Exhibited only at Taşkışla
	Extended Dialogue	Accompanied by a two-day symposium and a book, fostering ongoing academic discussion and public engagement	Accomponied by an exhibition catalogue and a panel discussion	Accompanied by a panel discussion, a special issue for Betonart magazine, a podcast recording for Açık Radyo and a published book of Yücel's essays

and, as evaluated collectively in this section, facilitates their comprehensive assessment.

5. Conclusion

The theoretical, practical, and historical dimensions of architecture do not delineate distinct fields of enquiry within clearly defined boundaries; instead, they delineate variations that coexist with differences in intensity. As discussed here, one of these variations stems from a non-linear and recursive path that defines a loop touching architectures, archives and exhibitions. Architecture's ability to appear both as an archive and as an exhibition of itself simultaneously encourages a critical discussion.

While suggesting a reading for practices of constructing spatial memory with a similar critical perspective, the Funda Uz draws an analogy between footnotes and archives. Footnotes "acts as key" to a "doorway leading to the source, origin, or 'arkhe'". Just like them, archives "operate within a network of relationships where various pieces of information come together and are organized; in this realm, they can be seen as the founders of spatial memory". According to Uz, archives are also mediators of a "critical argument against a shared cultural understanding" and in terms of their relationship with memory there is a need for "fictional and creative" spaces, rather than the "acceptance of absolute and unchanging" (Uz, 2022). While there is plenty of room for creativity, a significant amount of information and archival value is embedded in Taşkışla as an architectural object, as the host of an eminent architecture school and

as an exhibition venue, it unfortunately doesn't have an accessible archive. Despite the absence of an archive that holds original materials, the archive that is based on the exhibitions that came from those original materials could lead to a new horizon.

Memory is not a metaphysical or purely abstract concept and the strong connection of it to the tangible artifacts and spaces they inhabit is undeniable. However, the absence of those artifacts and the removal of their images attached to those spaces is also part of the memory. This work is an effort to create a site-specific micro-archive that brings minor narratives and the dispersed pieces of memory together to put them back into the halls and rooms of Taşkışla. It illustrates how archives can adopt a more inclusive and community-centered approach, how architectural exhibitions can function as laboratories that generate knowledge rather than just mediums, and how all of these elements intersect through an architecture school, via this micro-archive.

The inaccessible archive of Taşkışla, and the unrecorded exhibitions it hosted may become the foundation of this new pluralistic structure. Since this study is not shaped around an existing archive, it produces its own resource, to illustrate a model. Beginning with the premise that no archive is ever complete and acknowledging the ephemeral nature of exhibitions, it draws on flashbacks and echoes in the absence of remnants. Low-resolution images, sparse coverage on now-defunct webpages, and serendipitous encounters are woven into this narrative. Through this paper, we aim to bring these fragments together and construct the archive through the act of writing. It is urgent to collectively look backwards to see what can be found, but what is more urgent is coming up with a strategy today, to move forward and have access to what the future will bring.

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Designing negotiation: Osep Saraf's Şişli Culture and Trade Center

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Abstract
In 1988, Minoru Yamasaki Associates won an invited design competition for the Şişli Culture and Trade Center in Istanbul. Organized by Cevahir Group, one of Türkiye's largest civil engineering companies at the time, the competition aimed for "a prestigious business center" to be co-owned by the company and the city municipality. Senior associate Osep Saraf, an Armenian architect from Istanbul who had been working at Yamasaki since leaving Türkiye in 1980, played a pivotal role in the project's design and revision. His expertise and understanding of local links between architectural production and financialization were instrumental in the project's success. Saraf significantly redesigned the winning entry, utilizing a flexible plan that could be realized in phases and function even if left incomplete. He transformed the initial two-tower scheme, proportionally shared by the part-owners, to be resilient to potential conflicts of interest, budget cuts, or unforeseen conditions familiar to local architects in Türkiye. This article examines Saraf's postmodern design approach as an act of "negotiation" that constructs a postmodern operative space between the global architecture firm, the Turkish construction company, and local practitioners. It also constitutes a unique design strategy appropriating conventional corporate systemization to respond to the unstable socioeconomic conditions of a so-called developing country. Drawing from the architect's archives and memoirs, recorded in an online interview during COVID-19, this study narrates the design process of the Şişli Culture and Trade Center—later transformed into today's Cevahir Shopping Mall—as a dynamic conversation between local and global forces in architecture.

Keywords
Architectural competitions, Corporate architecture, Design process, Design(ing) negotiation, Osep Saraf.

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1. Introduction

In 1988, Cevahir Group, an established company in 1970s Türkiye, and the Municipality of Istanbul announced an invited (i.e., limited) architectural competition for a new trade center in Şişli, Istanbul's newly developing central business district. The competition brief called for "a prestigious business center" to create a landmark and add "symbolic value" to the city's heart. The winning project was planned to be built by Cevahir Group with a flat-rate system on 64,000 m2 of land owned by the Istanbul Municipality, previously used as a bus garage by Istanbul Electric Tramway and Tunnel Establishments (IETT) [1]. All parties were required to comply with competition regulations established by the Ministry of Public Works. The sponsors favored the limited competition and invited twenty national and international firms with strong track records. Seventeen groups accepted the invitation and worked on their proposals for six months. Each group received a payment of 15,000 Turkish Lira to cover expenses – marking the first time such an allowance was granted in architectural competitions in Türkiye [2]. Ownership of the project was divided, with 51% held by the Istanbul Municipality and 49% by the developer, Cevahir Group. Thus, the required program was structured accordingly: 50% of the enclosed area was to be designed as office space, 40% as shopping areas, and 10% as a co-owned 5-star hotel.

Anyone familiar with the contemporary Turkish architectural scene at the time would have realized that this competition was exceptionally different. It was co-sponsored by a mayor known for his ambitious urban renewal projects and a major construction firm that guaranteed to build and manage the selected proposal. Mayor Bedrettin Dalan had implemented an extensive urban regeneration program in Istanbul since winning the 1984 municipal election, the first held following the 1980 military coup. He pursued aggressive initiatives, invasive infrastructure projects, and massive urban demolitions to situate the city within the global economy of the 1990s. Dalan must have been particularly willing to conduct an international competition for a complex, high-budget project on a challenging, municipally owned site. Consequently, his administration claimed an active role in the competition and design process. As the city's mayor, Dalan was to serve as the selection committee chair and choose the jurors. The jury included Prof. Süha Toner, rector of Yıldız Technical University; Prof. Gündüz Özdeş, a prominent member of Istanbul Technical University's City and Regional Planning Department; Prof. Müfit Yorulmaz, an expert in building science and the restoration of historical buildings at Istanbul Technical University; Prof. Muhteşem Giray, an architecture professor from Mimar Sinan Fine Arts University; and two structural engineers, Eser Tümen from STFA, a principal international contractor from Türkiye, and Veysel Özoğuz from Cevahir Group. Notably, all three architecture schools in Istanbul were represented by at least one faculty member, and the corporate sponsors shared the last two spots.

The competition's corporate sponsor, Cevahir Group, had begun financing and developing its own local projects after achieving significant success as a contractor company in Libya and Saudi Arabia. For them, the competition was primarily about prestige. As explained by M. Sarfatti Larson, the most evident value of architectural competitions to the corporate sponsors lies in the myths surrounding the whole process: "The competition in itself helps turn the desired building into a monument before the fact: Publicity and public-ness, the fact of being public, become an integral part of the project's extraordinary symbolic essence" (1994, p.478). Remarkably, at the press launch (Figure 1), Dalan stated that this project would provide an opportunity to reuse the derelict IETT garage site, which was recently transferred to its new building in İkitelli (Istanbul's newly established industrial area), and most importantly, to leave a lasting mark on the city's architectural landscape while providing funding for the municipality: "The main reasons for us to build this facility are to mark our era, to respond to the social and cultural needs of the region, to contribute

to the trade and cultural life of Istanbul, and to ensure that money enters the municipality's purse." ("Şişliye Dev Proje", 1988, p.10).

These telling terms of the mayor underlined not only the intertwined motives attracting both parties but also generated massive publicity, allowing Cevahir Group to present themselves as 'patrons of architecture,'– despite the fact that a culture and trade center, as an architectural typology obtained through competitions, was an unexplored territory in Türkiye back then. From the early 1980s to the mid-1990s, government-sponsored competitions asked for the design of cultural centers only, not a combination of culture and trade. Notable examples include the 1981 Ankara Atatürk Cultural Center Competition, the 1984 Eskişehir Cultural Center Competition, the 1991 Ahlat Selçuklu and Konya Mevlana Cultural Center Competitions, and the 1992 Nevşehir Hacıbektaş-ı Veli Cultural Center Competition. As underlined by Sayar (2004), these competitions paved the way for the diversification of the competition environment in terms of architectural language. In parallel to the economic, political, and cultural developments, the winning projects "abandoned the International Style and replaced it with frameworks such as history, culture, and tradition to strengthen the image of the building" (Sayar, 2004). There were a few trade center competitions - 1984 İzmir Basmane Tourism and Trade Center, 1986 Samsun Municipality Trade Center, and 1989 Kuşadası Municipality Trade and Social Center. Among these, the 1984 Basmane competition was the closest precedent to such a complex program, with a brief requiring a congress center, a 5-star hotel with 1,000 beds that could work together with or separately from the congress center, a commercial venue that would serve the domestic and foreign markets, and a parking lot for 500 cars [3]. Despite the 5-6 storey buildings around the Basmane area, there were no height limitations as long as the neighboring boulevard remained open to traffic. The local administration never realized the winning project, but it constituted the only contemporary program from the 1980s comparable to the Şişli Culture and Trade Center.

Figure 1. *Bedrettin Dalan at the press launch, Milliyet, June 17, 1988.*

2. And the winner is…

By the deadline of around six months, seventeen out of twenty invited offices registered, and fourteen submitted completed entries, including renowned Turkish architects Vedat Dalokay, Melih Birsel, Sevinç Hadi, Doruk Pamir, and Necati-Mine İnceoğlu, among others [4]. The selection process was rigorous, with the jury evaluating the proposals based on architectural merit, feasibility, and adherence to the competition brief. In the first round, the jury eliminated Yapılar+Sage & Betrek Behnesh Group's project as it was not conforming to the requirements, while Özkan İşler's entry was disqualified due to late submission (Uzun, 2004). All proposals included several office towers, a hotel, and a retail center around a central plaza, often perpendicular to Büyükdere Street, the main avenue. According to the jury report, two separate entries by Sevinç Hadi and her team, the proposals by Necati-Mine İnceoğlu and Doruk Pamir were eliminated due to the exceeded gross floor area (GFA) ratios and the lack of adequate infrastructure and service facilities. In the subsequent evaluation stages, the jury favored projects with two or fewer towers over those with symmetrical multiple-tower schemas, citing site-specific urban concerns. The document continued with a commentary on how such a reappraisal of the municipality's site will contribute to

regional development - not surprising if one considers the jury's organic relationship with the public office [5]. The following note, however, highlights a critical point on how the program based on ownership ratios influenced the architectural form:

> "The formal language of most entries was highly influenced by the brief's emphasis on monumentality and image-building requirements. Besides, the quest for contextual integration, particular planning decisions reflecting the shared rates between co-sponsors, and construction scheduling in phases caused certain difficulties for the competitors."

Lastly, it is stated that three projects had "artistic qualities" in addition to the conditions stipulated in the brief. Michigan-based architecture firm Yamasaki Associates (MYA) won the competition, and the two entries by Prof. Sümer Gürel, and İbrahim Yalçın with Nikken Sekkei were purchased by Cevahir Group (Figure 2). The winning team was composed of William Ku (then President of the American Institute of Architects) as principal in charge, Osep Saraf (Senior Associate) as Project Director-Designer, Alfred A. Yee / Applied Technology Corp as Consulting Structural Engineers, Joseph R. Loring Associates - who also collaborated with Yamasaki on the World Trade Center (WTC) project - as Consulting Mechanical & Electrical Engineers, and Barton & Aschman as Traffic Consultants. Given these rather critical comments, the final decision ensured that the winning entry met the required maximum density and development criteria set by the two sponsors. The award seemed to be presented to an 'architecturally safe' proposal – reflecting a group decision looking for a fair common ground. According to the architectural report by Yamasaki's office, the project proposed a total construction area of approximately 550,000 m2 (6,000,000 sq ft) with a shopping mall of 5 storeys, two high-rise office blocks of 46 and 36 storeys, five office blocks of 17 storeys each, a hotel of 38 storeys, theater, and conference halls, sports center with tennis courts, and a parking lot for 3,300 cars [6]. In terms of spatial organization, the mixed-use scheme was developed to align with the urban characteristics of the neighborhood, locating the twin office towers along the main artery while placing the hotel at the rear, adjacent to the neighboring residential buildings.

As detailed in the following sections, what rendered this project 'safe' was not just its adherence to development constraints, but rather the resilient negotiation strategies embedded in the competition entry by Osep Saraf. He adeptly navigated both corporate global practices and local construction dynamics, making this case a compelling example of negotiation as a post-modern design act. Instead of focusing on the stylistic attributes often associ-

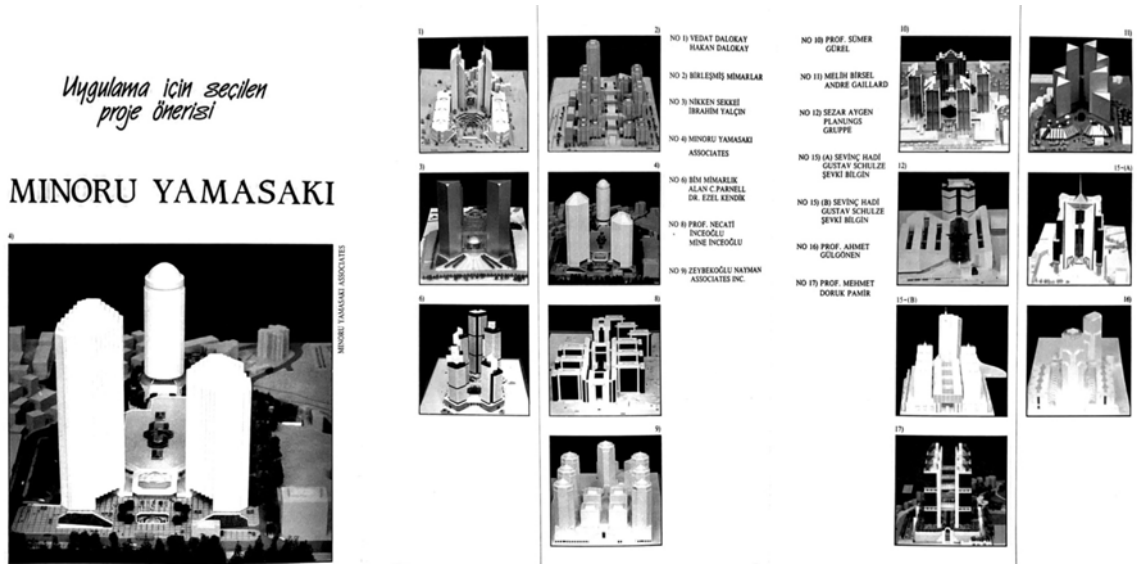


Figure 2. *Announcement of the results.*

ated with postmodern architecture—though the project certainly embodies many of these characteristics—we draw on Sylvia Lavin's concept of "postmodernization effects." Lavin (2020) argues that while histories of architectural postmodernism are predominantly concerned with stylistic genealogies and creative genius, they often overlook the profound impact of postmodernization on architectural procedures. Through this lens, the focus shifts from the so-called autonomy of the architect to empirically driven accounts of architectural activity, prioritizing process and material evidence over images and buildings. It is important to note that, unlike the conceptual architects of the period, Saraf did not revise the process merely for its own sake. Instead, he used negotiation as a practical tool to complete the project.

While negotiation typically suggests bargaining, its scope extends beyond financial aspects to encompass a multi-actor dialogue that generates transformative influences. Unlike collaborative design or co-creation, negotiation in design thrives on creative conflict, where contrasting perspectives are reconciled to drive innovation. This approach anticipates and structures the interaction between various stakeholders, predicting the dynamics of their engagement before the actual encounter. It acknowledges the inherently multi-actor nature of the design process from the outset.

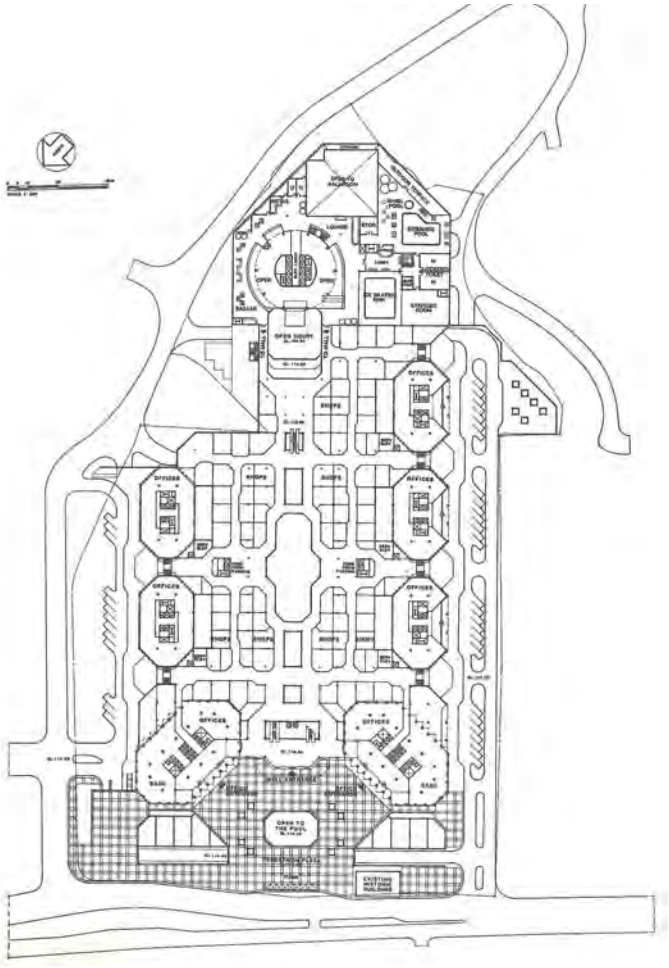


Figure 3. *Ground floor plan as published in Yapı Magazine (1988, p.44).*

In August 1988, *Yapı* magazine, one of Türkiye's leading architectural publications, featured the project's drawings and a detailed architectural report (Figure 3). Translated from the original one submitted in May 1988, the report summarizes the main design criteria: the organization of retail and public open spaces based on the sponsor's ownership; the planning of the construction in several phases; the use of local materials and technologies; controlling the traffic flow; providing a flexible plan with both natural light and air conditioning; and providing a certain symbolic value [7]. (Figure 4).

While these design decisions reflect common spatial sensibilities ensuring the required "maximum and dense development," repeating notes in the architectural report and office correspondence from 1988 revealed what mattered most (Figure 5). They introduced the project by emphasizing not the spatial and conceptual decisions but the information on the ownership, which became the operative tool throughout the process. "59% shared by Metropolitan Istanbul Municipality, 41% shared by the Cevahirler Group Developers," states an office correspondence from August 25, 1988, likely part of a press release kit, as the first detail under the title "Details of the competition" [8].

The text continues, "As a joint venture between municipal and private developers, the project represents the single largest commercial development near the central business district, and will serve as a symbol of the economic vitality and capabilities of the region." The issue of part-ownership emerges as the definitive paradigm given the descriptions of design decisions in the following document [9]:

> "The high value of the property in this premium location requires maximum and dense development of the site while creating a special environment enhancing the business community. Marked on the Istanbul skyline, the Center will feature the tallest buildings in the city and incorporate several office towers, a vast arcade of retail shops, restaurants, entertainment facilities, and a luxury-class hotel. Key issues affecting the project's design included phasing, clear division of ownership among project elements, landmark visibility, plan flexibility, use of regional materials and building systems, site access, and circulation. Also important was the provision of public open spaces and sufficient concealed parking."

The document concludes by noting the importance of the construction phases as much as the design, underlining the winning team's emphasis on clients' arrangements [10]: "By its nature, a competition precludes much of the vital interaction with a client. However, this scheme was awarded first prize out of fifteen international submissions because it represented the clearest understanding of the client's needs for project execution, including multiple ownership, phasing, relation to the surrounding environment, municipal regulations, and prevailing construction technologies."

Between 1989 and 1992, Yamasaki's team made further adjustments to the preliminary project and submitted revised design packages in response to employers' new program requirements. As understood from these archival documents (Figure 6-7), Cevahir Group was very pleased with the completion of the preliminary design in 1989 [11] and decided to raise the design fee "with another USD 20,000 – for further future cooperation." [12].

However, the project was never realized and got lost in bureaucracy until it was ultimately transformed into a different building. What happened after the competition and how the Şişli Culture and Trade Center evolved into today's Cevahir Shopping Mall deserves a prologue introducing the exceptional Japanese-American architect Minoru Yamasaki and his chief designer Osep Saraf.

3. One architect's struggle is another's paradise

Recently called "America's most famous forgotten architect" (Kidder, 2021, p.1), Minoru Yamasaki established himself as a major figure in American architecture during the 1950s. He developed an architectural philosophy of modernism differing from the 'glass boxes' of his contemporaries and explored viable alternatives to modernist canons. Having faced anti-Japanese discrimination like many

Figure 4. *Model photo. Courtesy of Mert İşler personal archive.*

Osep

MINORU YAMASAKI ASSOCIATES, INC.
RE: Istanbul - Sisli Culture and Trade Center

August 25, 1988
Contact: Eva Kroupa
(313) 689-3500

Details of the competition

Minoru Yamasaki Associates, Inc. was awarded first prize in a limited, paid international architectural design competition for a mixed-use development in downtown Istanbul, Turkey.

Owner: 51% shared by Metropolitan Istanbul Municipality
49% shared by the Cevahirler Group Developers

Owner invited 16 firms to participate in the competition:
6 Turkish architectural firms
5 Foreign architectural firms
2 USA
1 Japan
1 Austria
1 Germany
5 Consortium (foreign and Turkish)
1 Switzerland/Turkey
1 Austria/Turkey
3 Germany/Turkey

Project Team

MINORU YAMASAKI ASSOCIATES, ARCHITECTS
Principal in Charge: William Ku, AIA
President
Project Director-Designer: Osep Saraf, UIA
Senior Associate
NOTE: UIA (International Union of Architects)

Consulting Structural Engineers:
Applied Technology Corp.
a division of Alfred A. Yee
Honolulu, Hawaii

Consulting Mechanical & Electrical Engineers:
Joseph R. Loring Associates
New York, New York

Traffic Consultants: Barton & Aschman

76EK-25

Figure 5. *Details of the competition, August 25, 1988. Courtesy of Osep Saraf personal archive.*


THE CEVAHIR GROUP
CONSTRUCTION
CEVAHİRLER

ISTANBUL, March 24/1989
SKTM-89/5-102

Mr.William Kuu, President
Minoru Yamasaki Associates
350 West Big Beaver
P.O. Box 4100
Troy, MI 48007 – 4100

Ref : Şişli Cultur and Trade Center
Schematic Design Package

We have the great honor of informing you about the completion of schematic design of Şişli Cultur and Trade Center project İstanbul/Turkey of Cevahir Group of Companies,with your esteemed company and your colleagues,ATC,and JRLA's valuable efforts on a succesfull level.
So,we sincerely thank to all parties for their valuable efforts and especially thank to Mr. OSEP SARAF for his great endavoir to achieve quality and satisfactory result with the design.

Best Regards

Ibrahim CEVAHIR
President

MINORU YAMASAKI & ASSOC.
APR 13 1989

Figure 6. *Letter from Ibrahim Cevahir to Yamasaki Associates, March 24, 1989. Courtesy of Osep Saraf personal archive.*


THE CEVAHIR GROUP
CONSTRUCTION
CEVAHİRLER

July,13.1990

Minoru Yamasaki Associates
350 West Big Beaver
P.O. Box 4100
Troy MI 48 007. 4100

Att : Mr. William Ku – PRESIDENT
cc : Mr. Osep Saraf – PROJECT DIRECTOR
SUB : COMPLETION OF SKTM MODIFIED MASTER PLANNING DESIGN

Dear Sirs,

We would like to inform you about the receival of SKTM MODIFIED MASTER PLANNING design package, which was submitted to us on June,29th,1990 at ISTANBUL by Mr. Osep Saraf.

On this occasion , we like to express our admiration to your valuable endaviours for a perfect design which copes with every phase of our sequencial preferences for full project scope.

Thank you Gentlemen, we thank to your office and thank to all indivuduals who are participated with the design.

Therefore, as our response to your valuable and remarkable study of SKTM design which is a product of a hard architectural investigation and experience , we decided to raise your design fee with another USD 20.000.- as total , to show our goodwill and to make bridge for further future co-operations.

Sincere regards

Mehmet Cevahir
Deputy President

Figure 7. *Letter from Mehmet Cevahir to Yamasaki Associates, July 13, 1990. Courtesy of Osep Saraf personal archive.*

other Japanese immigrants during World War II, he sought a humanistic approach to modern architecture, evolving from a concern for the users' emotional and sensory experiences to a passion for "serenity, surprise, and delight." Architecture critic Ada Louise Huxtable described his work in a 1962 *New York Times* article: "The work […] is so characteristic of its designer that it could be picked out as Yamasaki's in any simple guessing game," she wrote. "There are pools and plants, skylights and courts, domes, vaults, arches, arcades, canopies and colonnades. Materials are sumptuous; surfaces are intricate. These are exotic, elaborate designs intended to delight the senses." (Huxtable, 1962, p.265). Despite a portfolio of over 250 buildings, Yamasaki's fame comes from the tragic destruction of his two projects: the Pruitt-Igoe and the World Trade Center. Designed as low-cost housing in St. Louis in 1955, the Pruitt-Igoe project was a spectacular failure, indicating "the death of the modern architecture," as famously stated by Charles Jencks [13]. These residential towers, commissioned by Pruitt-Igoe Neighborhood Corporation, were meant to stand as a triumph of functional architectural design. Instead, two decades of turmoil, mainly due to the lack of funds to maintain the buildings over time, resulted in the unceremonious destruction of the entire complex in 1973.

With a damaged reputation, Yamasaki remained occupied with the modernist ideas of functional efficiency, structural expression, and technological advancement, resulting in fewer distinctive designs, more generic buildings, and formulaic skyscrapers (Gyure, 2017, p.261). Yamasaki's most celebrated commission came through his collaboration with the Port Authority of New York and New Jersey – an interstate agency developing and modernizing the port district to improve commerce and trade. The WTC project earned him an appearance on the cover of *Time* magazine in January 1963. Still, the project was already dismissed by its completion in 1973, barely a year after the demolition of Pruitt-Igoe had begun [14]. Yamasaki died of

cancer in 1986, long before the tragic destruction of his iconic project in 2001. Two years after his death, while the architectural world splintered into various directions and new theoretical approaches gained influence, his office continued his legacy and won the Şişli Culture and Trade Center competition with a direct reference to the master architect: "The proposal's primary mission is to foster increased cultural and commercial exchange – a type of world trade center – as Istanbul and Türkiye enter worldwide commercial markets." [15] The chief designer of the winning project was Osep Saraf, an Armenian architect born in 1932 and raised in Istanbul.

After graduating from Istanbul Technical University School of Architecture in 1956, Saraf designed several houses and apartment blocks in "Miesian modular style with big glass facades" (Saraf, 2003, p.40) and later won the competition for Eskişehir Sports Center in 1959 with Nişan Yaubyan, a well-known Armenian architect from Türkiye. This competition marked a breakthrough in his career: "I had celebrated for days that I became an architect and escaped financial and emotional difficulties!" (Saraf, 2003, p.41). However, the 1960 Turkish coup d'état that started a provisional military regime interrupted most architectural practices, after which Saraf went to the University of Pennsylvania on a scholarship to study at Louis Kahn's atelier. As he explained in our interview, Saraf earned this scholarship partly due to his competition entry for the METU Campus as UPenn's dean, G. Holmes Perkins, had previously served as a UN expert on the project.

Despite Kahn's profound philosophical influence, Saraf declined his job offer after graduation due to financial difficulties. Instead, he joined MYA, where he reunited with Nişan Yaubyan, who had worked there intermittently between 1959 and 1970, and received overtime pay for extra working hours. Having gained a newfound respect for Mies after school and visiting his buildings in the United States, Saraf explored different aspects of both Kahn's and Mies' architectural philosophies while working at Yamasaki's office:

> "In America, I realized that Mies's simple architecture taught me only grammar, but not how to write poetry. I visited all his buildings; it started to feel monotonous and numb. Louis Kahn was a fan of starting from the most complex question and sorting things out, but I believe, on the contrary, that we must start from the simplest. Yama [how they refer to Yamasaki in the office] kept saying that the idea itself is nothing; what is more important is what a person feels when he enters the volume you created. This dilemma helped me grow into the architect I am today."

In an interview for *Mimarlık* Journal in 2003, Saraf recalls his early days at MYA, working on projects such as WTC and university campuses of Pahlavi (Iran) and Saskatchewan (Canada). He especially praised Yamasaki's use of working models and his particular concern for aesthetic values in design, noting that he combined these principles with Kahn's rationality (Saraf, 2003, p.41). After working for over two years, Saraf returned to Türkiye in 1963. Together with Yaubyan, he won the design competition for Okmeydanı Hospital that same year, while they were still working on the Eskişehir Sports Center project. He returned to the US in 1965 and then back to Istanbul in 1966. These repeating episodes of relocation created an unexpected and almost unique cross-Atlantic exchange. "Nişan and I were unemployed in the 1960s, had no stable income; there were only competitions." Thus, competitions became a significant component of his oeuvre throughout the 1970s and 1980s, with numerous winning entries [16]. He designed a duplex house for four siblings as one of his earliest commissioned projects, the Kumburgaz summer house (1969). For each of them to benefit from the beach equally, Saraf interpreted the modern house with three levels - services on the beach floor, living spaces on the ground floor, and bedrooms on the top floor. He designed the lounge opening to the terrace with folding doors and connected the terrace to the beach with a separate staircase for bare feet (Saraf, 2003, p.41). However, during our interview, he expressed his belief that he had failed to relate the house to the lo-

cal context: "My connection with history was insufficient; I could not create Turkish architecture." Yet, as he worked on many government buildings (either solo or in collaboration with Nişan Yaubyan and Güntekin Aydoğan), he gradually became a local architect specializing in the nuts and bolts of construction and management. Partly referring to multiple hospital projects he worked on during the 1970s, Saraf declares:

> "There is no maintenance in Türkiye. There is no program. Some architects only design programs in America. They do feasibility studies and prepare a program for the owner. Our hospital projects in Türkiye are based on thirty-year-old programs. Nobody talks to the user. When the chief physician changes, everything changes all over."

In 1980, as Türkiye underwent yet another military coup, Saraf immigrated with his family to Michigan and was offered a position at the Minoru Yamasaki Association, where he worked as a vice president until his retirement in 1994. By the time he took on the Şişli Culture and Trade Center competition, he knew that the US chapter was formative in his career, and he needed to transfer this knowledge somehow to Türkiye:

> "During my stay in Istanbul, I started to think that I could contribute to Türkiye with American "know-how" and technology as an architect who knows the uncertainty and irregular conditions of the building industry here in Türkiye. With a desire to create works in my homeland, I started participating in international architectural competitions in Türkiye as an associate from MYA and became successful in winning. Of course, the American architectural office's competitive advantage and wide resources greatly contributed to my success."

Reading contemporary architectural magazines makes one believe that Yamasaki Associates' winning design was highly praised and scheduled for completion in five years. *CAM Magazine* (Construction Association of Michigan) named the project "an exotic design with office towers and a hotel surrounding the perimeter of a central multi-level retail mall." ("Exotic design," 1988, Highlights section, para.3). On August 31, 1988, *Oakland Press* announced that the office had "won an undisclosed cash prize" to design and build "the largest commercial development in Turkey" ("Troy Architects," 1988). This was the first time Osep Saraf was publicly identified as the project's chief designer. In another interview for *ENR* magazine, Saraf explained his addition of a city park to the project, which included "lavish fountains and gardens, which Turkish people love." ("Towers to top," 1988, p.22). He hardly hid his enthusiasm and called Türkiye "an open market much like Hong Kong … a builder's paradise."

> "I won the competition because I designed the project like a local architect. Architects from Türkiye submitted projects like the Americans, all filled with dreams… I was selected for submitting the most appropriate project for the conditions of Türkiye." [17]

While Saraf acknowledges the dynamics of local architectural practice in Türkiye, the project certainly reflects features of Yamasaki's design philosophy. Yamasaki's approach embraces harmony, balance, and humanism, integrating classical architectural elements like arches and columns into modernist structures to create serene, elegant spaces that evoke a sense of dignity and tranquility. Historically situated within New Formalism, this philosophy aligns Minoru Yamasaki with contemporaries such as Edward Durell Stone and Philip Johnson. The adoption of geometric regularity and gleaming white facades is clearly evident in Saraf's project, as demonstrated in the early sketches by Mert İşler, who was an intern at MYA at the time (Figure 8).

On the other hand, what Saraf refers to as a "dream" in the quote above points to the difference between design and its execution. As a local architect who practiced in Türkiye for many years, he was well aware of the uncanny oscillations in the construction sector caused by the rapidly changing economy, political figures, and state policies. Since this "know-how" primarily involved managing large development projects with semi-governmental organizations and clients - as one could easily compare the Dalan & Cevahir collaboration to the Port Authority NY - and working over long periods within fluctuating

budgets, Saraf had already applied precautions during the initial design.

To deal with phasing, budget cuts, and altering ownership requirements, the architect designed the project in 'compartments,' i.e., each part was designed as an independent, self-contained package. As stated in the MYA's project report in May 1988 [18]:

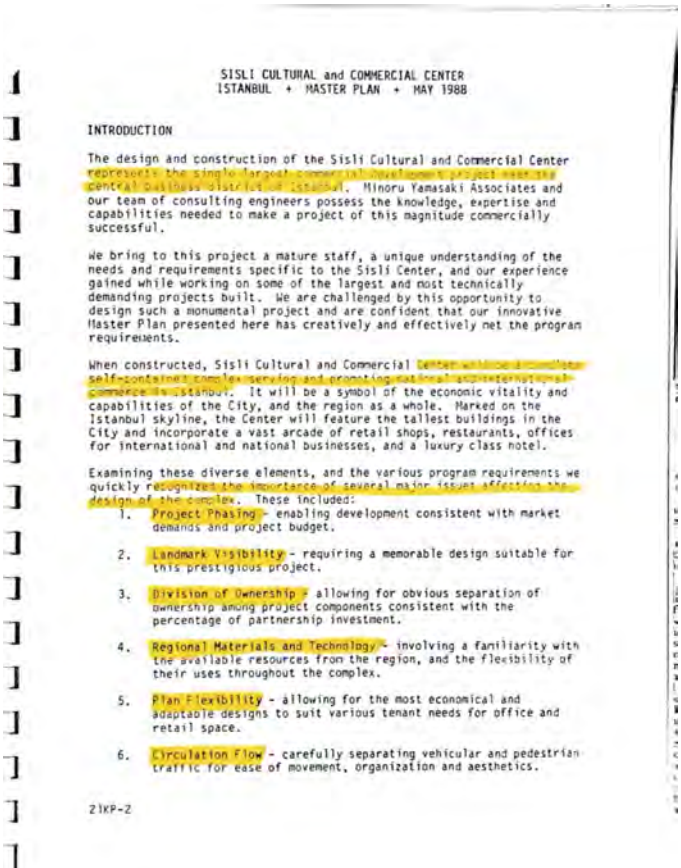
> "Because of the magnitude of the project and the variability of the market forces, construction will be organized in three major phases. The first phase will include the low-rise Office Buildings and the Shopping Mall. To achieve the earliest possible opening date, Phase One may be broken into three subphases. This will depend in part on market conditions. Phase Two is devoted to the construction of the high-rise Office Towers, and Phase Three completes the Hotel and Entertainment facilities. The project phasing is planned in such a rational manner that each project phase will work as an independent complex of offices, shops, garages, and services. Functional requirements for the building elements of each phase are met separately. Consecutive phases will enhance and add to the initial features of the first phase. In addition, the high-rise buildings in each phase are easily divisible between partners with the ratio of floor space and square meters being 59% and 41%." (Figure 9).

Here, the architect continuously sought alternative ways to create optimum conditions for the architectural manifestation of his original ideas and drawings. These particular exchanges elevated both the architect and the design process to a new level. Saraf acted as a translator of American corporate architecture into the local context and a mediator of its execution, adapting his design to evolving ownership, funding, and scheduling circumstances. He became a negotiator, and negotiation itself emerged as a postmodern design act, where the process became the architectural product.

4. Politics of negotiation

The project underwent major revisions over nearly two decades of negotiations and discussions between Saraf and corporate clients. A handwritten note for the budget follows the categories mentioned above with estimated costs for each, adding up to USD 500,000,000. Saraf shares an anecdote regarding the bargain in Istanbul between Yamasaki and Cevahir, which was fairly typical in Turkish business affairs but seemed quite strange to Americans:

Figure 8. *Elevation sketches. Courtesy of Mert İşler personal archive.*



SISLI CULTURAL and COMMERCIAL CENTER
ISTANBUL + MASTER PLAN + MAY 1988

INTRODUCTION

The design and construction of the Sisli Cultural and Commercial Center represents the single largest commercial development project near the central business district of Istanbul. Minoru Yamasaki Associates and our team of consulting engineers possess the knowledge, expertise and capabilities needed to make a project of this magnitude commercially successful.

We bring to this project a mature staff, a unique understanding of the needs and requirements specific to the Sisli Center, and our experience gained while working on some of the largest and most technically demanding projects built. We are challenged by this opportunity to design such a monumental project and are confident that our innovative Master Plan presented here has creatively and effectively met the program requirements.

When constructed, Sisli Cultural and Commercial Center will be a complete self-contained complex serving and promoting national and international commerce in Istanbul. It will be a symbol of the economic vitality and capabilities of the City, and the region as a whole. Marked on the Istanbul skyline, the Center will feature the tallest buildings in the City and incorporate a vast arcade of retail shops, restaurants, offices for international and national businesses, and a luxury class hotel.

Examining these diverse elements, and the various program requirements we quickly recognized the importance of several major issues affecting the design of the complex. These included:

1. Project Phasing - enabling development consistent with market demands and project budget.
2. Landmark Visibility - requiring a memorable design suitable for this prestigious project.
3. Division of Ownership - allowing for obvious separation of ownership among project components consistent with the percentage of partnership investment.
4. Regional Materials and Technology - involving a familiarity with the available resources from the region, and the flexibility of their uses throughout the complex.
5. Plan Flexibility - allowing for the most economical and adaptable designs to suit various tenant needs for office and retail space.
6. Circulation Flow - carefully separating vehicular and pedestrian traffic for ease of movement, organization and aesthetics.

ZIKP-Z

Figure 9. *Şişli Culture and Commercial Center masterplan report, May 1988. Courtesy of Osep Saraf personal archive.*

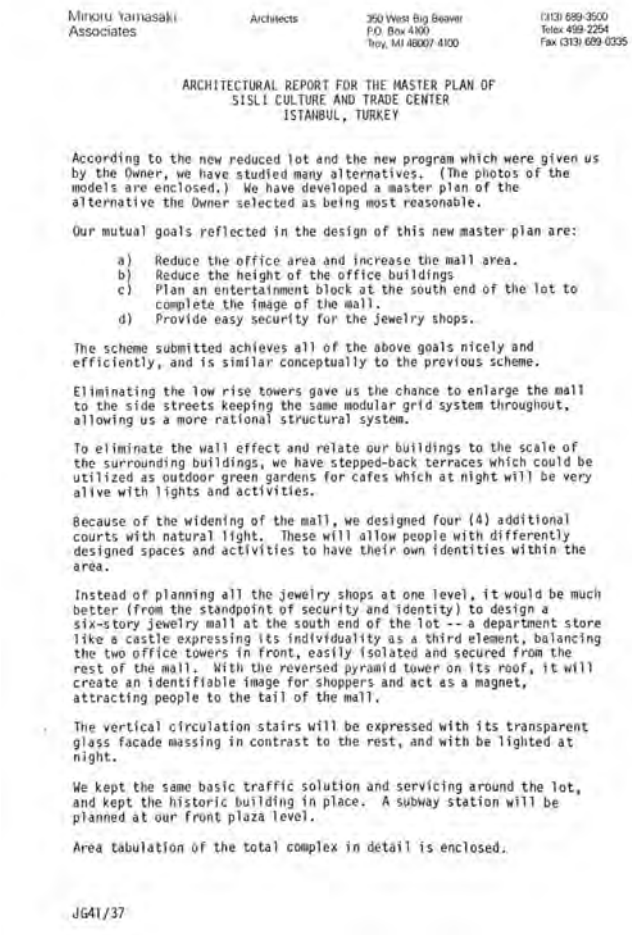
> "When 'Yama' won, he immediately threw a party. We came to Istanbul with the chief designer. Mehmet Cevahir and İbrahim Cevahir's office was in an old apartment building near Okmeydanı. The bargaining started at 20,000 dollars for the preliminary project. I said, "Let's do the contract for the preliminary project in phases." The chief designer was shocked. In the US, the usual fee is 500,000 dollars. The fee was raised to 100,000 dollars the next day. The chief designer returned to the US the following day and put me in charge. I raised our fee to 300,000 dollars in a week with my Grand Bazaar experience. The bargaining continued after I returned to the US, exceeding 400,000 dollars. The project was complete, we got our money, and I got a bonus of 20,000 dollars."

Between these bargains, the project enters a cycle of revisions, and being familiar with the dynamics of both Turkish and American contexts, Saraf knew how to navigate among them. "I came to America at the age of 48 [in 1980], so I was not an American there," he mentioned in the interview. According to Saraf, unlike the horizontal responsibility structure typical in US office culture, the vertical responsibility structure in Türkiye allowed him to complete the project on time by giving weekly presentations to Yamasaki's office. "It was not going to be finished with their method; I did it with my own methods," he claims. While not entirely an American there, he was also not entirely a local in Türkiye, as he collaborated and adapted to changing demands rather than resisting them. "First, the hotel was canceled. They asked how we would run a hotel together with the municipality," Saraf recalls.

> "In Türkiye, such a cancellation is unacceptable; architects and contractors would object to the decision. But that seems more normal in the US, and professionals usually seek ways to deal with such major revisions. At that point, I chose to behave like an American."

As he prepared a new version of the project without a hotel, a second revision was required to reduce the height of the high-rise towers on Büyükdere Street, which were initially planned to be the tallest buildings in the city before budget constraints took precedence over symbolic value. The number of floors and square meters of the two towers differed in early press releases, reflecting a remarkable compromise between parties. Initially, the division was announced as 45 and 31 floors in the article published in *Milliyet* newspaper in June 1988, but later, the numbers were revised to 46 and 36 floors in the project report published in *Yapı* magazine in August 1988. The latter confirmed the 59% and 41% ownership ratio. Saraf explains how this ratio turned into a diagrammatic input for the project: "Towers rise according to these percentages; office buildings were also distributed according to the same percentage. I could not do it with the hotel as it was co-owned by both clients."

Soon after, the office blocks on the sides were also removed. Office correspondence reveals how the architect responded with new alternatives and continued developing the owner's new version [19]. (Figure 10).



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ARCHITECTURAL REPORT FOR THE MASTER PLAN OF
SISLI CULTURE AND TRADE CENTER
ISTANBUL, TURKEY

According to the new reduced lot and the new program which were given us by the Owner, we have studied many alternatives. (The photos of the models are enclosed.) We have developed a master plan of the alternative the Owner selected as being most reasonable.

Our mutual goals reflected in the design of this new master plan are:

a) Reduce the office area and increase the mall area.
b) Reduce the height of the office buildings
c) Plan an entertainment block at the south end of the lot to complete the image of the mall.
d) Provide easy security for the jewelry shops.

The scheme submitted achieves all of the above goals nicely and efficiently, and is similar conceptually to the previous scheme.

Eliminating the low rise towers gave us the chance to enlarge the mall to the side streets keeping the same modular grid system throughout, allowing us a more rational structural system.

To eliminate the wall effect and relate our buildings to the scale of the surrounding buildings, we have stepped-back terraces which could be utilized as outdoor green gardens for cafes which at night will be very alive with lights and activities.

Because of the widening of the mall, we designed four (4) additional courts with natural light. These will allow people with differently designed spaces and activities to have their own identities within the area.

Instead of planning all the jewelry shops at one level, it would be much better (from the standpoint of security and identity) to design a six-story jewelry mall at the south end of the lot -- a department store like a castle expressing its individuality as a third element, balancing the two office towers in front, easily isolated and secured from the rest of the mall. With the reversed pyramid tower on its roof, it will create an identifiable image for shoppers and act as a magnet, attracting people to the tail of the mall.

The vertical circulation stairs will be expressed with its transparent glass facade massing in contrast to the rest, and with be lighted at night.

We kept the same basic traffic solution and servicing around the lot, and kept the historic building in place. A subway station will be planned at our front plaza level.

Area tabulation of the total complex in detail is enclosed.

JG41/37

Figure 10. *Architectural report for the new masterplan. Courtesy of Osep Saraf personal archive.*

The office area was requested to be reduced, and the mall area was expanded. In the document, Saraf refers to these alterations as an opportunity to create new spatial experiences:

> "Eliminating the low rise towers gave us the chance to enlarge the mall to the side streets keeping the same modular grid system throughout, allowing us a more rational structural system. To eliminate the wall effect and relate our buildings to the scale of the surrounding buildings, we have stepped-back terraces which could be utilized as outdoor green gardens for cafes which at night will be very alive with lights and activities. Because of the widening of the mall, we designed four (4) additional courts with natural light. These will allow people with differently designed spaces and activities to have their own identities within the area.
>
> Instead of planning all the jewelry shops at one level, it would be much better (from the standpoint of security and identity) to design a six-story jewelry mall at the south end of the lot — a department store like a castle expressing its individuality as a third element, balancing the two office towers in front, easily isolated and secured from the rest of the mall. With the reversed pyramid tower on its roof, it will create an identifiable image for shoppers and act as a magnet, attracting people to the tail of the mall." ("Architectural report," MYA Associates, circa 1990-1992)

As hinted in this document, Saraf proposed a jewelers' bazaar heavily influenced by the Grand Bazaar, but the idea was rejected. He then suggested a glass tower that would offer panoramic views of Istanbul and be visible from the Prince Islands. "It was rejected due to financial concerns," he explains and continues, "Finally, I proposed it as a playground for children, but no luck! It was also rejected." The southern end of the lot is currently occupied by Cevahir Shopping Mall's cinema halls. Saraf considers this revision a severe mistake. Indeed, the entire new layout, transformed into a massive mall, is problematic in his view: "There is no such wide and longitudinal bazaar in the world. Also, that project lacks a magnet, a center of gravity after replacing the towers with giant inner courtyards." Even after stepping down from his role as an architect, Saraf can't help but wonder how he will generate alternatives.

5. Conclusion

The Şişli Culture and Trade Center's story, a testament to the resilience of the architectural design process, began with a mayor who harbored the ambition of leaving a signature building as his noteworthy legacy and "put money into the municipality's pocket." ("Şişliye dev proje," 1988). Saraf almost completely redesigned the winning entry, implementing a flexible phased plan that could function even if left incomplete. He transformed the original two-tower scheme, proportionally shared by the part-owners, into a structure resilient to conflicts of interest among shareholders, cancellation of specific programs due to budget cuts, or other unforeseen conditions familiar to local architects in Türkiye. This bold postmodern design approach was utilized as an act of "negotiation."

This relates to the dynamics of the period on two fronts. In the 1980s, national tastes or modes of local ways of doing business disappeared since "the world's needs and desires have been irrevocably homogenized" and "the global corporation operates with resolute constancy - at low relative cost - […]; it sells the same things in the same way everywhere […]," as published by the American economist Theodore Levitt in the *Harvard Business Review* (Levitt, 1983, p.92-93). Soon enough, the fall of the Berlin Wall in 1989, the collapse of the Soviet Union in 1991, and the end of the Cold War marked a new global era, triggering a seismic shift in world affairs that transformed contemporary architectural practice.

On the other hand, following the theoretical turn of the 1970s, scholarship on architecture and the postmodern condition began to diversify the definitions of material, design, and process. According to Lavin, the "intersections between the unclaimed acts of imagination embedded within engagements with bureaucratic procedures and the complex of tools, regulations, and economies […] shaped the conditions of possibility for the so-called genius." (Lavin, 2020, p.23). Like the architect-developer John Portman, whose pro forma for the Bonaventure

Hotel is considered a design process itself (Denny, 2020, p.61), Saraf designed a process. The object of architecture was designed and redesigned multiple times, demonstrating remarkable resilience. Moreover, the bureaucracy and ownership dynamics, which became key design concepts in Saraf's acts of negotiation, presented a bold "postmodernization effect" within Türkiye's architectural scene.

We observe a simultaneous transformation of the architect figure as we delve into the revisions through correspondences and anecdotes - not from architectural drawings as one might expect. Through multiple phases and attempts by varying actors, Saraf produced a series of alternatives - drawing and erasing towers, narrowing and expanding shopping areas, and adapting plans - until the mall, originally envisioned as a culture and trade center, was finally built. As his name appears in resources with altering spellings of Saraf, Sarafian, Sarafyan, or Sarafoğlu, the immigrant nature of this unique figure is reflected in how he designed the design process itself. Saraf did not negotiate for the autonomy of the original project, its aura, or even the designer's authenticity. Instead, he collaborated with the unstable forces of the process and created variations of spatial organizations. In other words, with Saraf's project, the design did not construct a process toward an object - whether a drawing or a building - but replaced the object with the process itself.

The unknown history of the Şişli Culture and Trade Center reveals a postmodern conversation space in 1990s Türkiye, where the aura of the architect and the artistic work remain intact. Unlike examples of seriality and design processes examined in today's postmodern architectural discourse, this unembellished process itself is considered a postmodern interpretation of corporate intentions. In negotiating the process, Saraf assumed the role of a mediator between the global and the local, between the developer and the architect, designing the project with an embedded destruction strategy in advance, thereby restoring its manifestation.

Acknowledgments
The authors thank Osep Saraf for generously offering his time for an interview and for providing access to his personal archive, and Mert İşler for sharing his architectural drawings.

Endnotes

[1] It is important to note that this article deliberately focuses on the Şişli Culture and Trade Center competition entry, not the Cevahir Shopping Mall, built in 2005 in collaboration with Turkish-British architect Can Yavuzarslan.

[2] Uzun, T. (2004). Türkiye'de Düzenlenen Uluslararası Mimarlık Yarışmaları: Tartışmalar, Skandallar, Ödüller [webpage]. Retrieved from http://www.yapi.com.tr/haberler/turkiyede-duzenlenen-uluslararasi-mimarlik-yarismalari-tartismalar-skandallar-oduller_95562.html

[3] Mangır, K (2021). Bir Kentin Elinden Kayıp Gitmemesi Gereken Değer: Geçmişten Günümüze Basmane Çukuru [web page]. Retrieved from https://kalkinmaguncesi.izka.org.tr/index.php/2021/03/24/bir-kentin-elinden-kayip-gitmemesi-gereken-deger-gecmisten-gunumuze-basmane-cukuru-1/

[4] Participants were Vedat-Hakan Dalokay, Birleşmiş Mimarlar, Nikken Sekkei and İbrahim Yalçın, Minoru Yamasaki Associates, BİM Mimarlık with Alan C. Parnell and Dr. Ezel Kendik, Prof. Necati-Mine İnceoğlu, Zeybekoğlu Nayman Associates, Prof. Sümer Gürel, Melih Birsel and Andre Gaillard, Sezar Aygen Plannungs Gruppe, Sevinç Hadi with Gustav Schulze and Şevki Bilgin, Prof. Ahmet Gülgönen, Prof. Mehmet Doruk Pamir.

[5] Şişli Culture and Trade Center Design Project Jury Report, re-published by Cevahirler Group Co., 1988. Courtesy of Osep Saraf personal archive.

[6] As announced in *Yapı* (1988). According to *Milliyet* news clip (June 17, 1988) on the press release by Mayor Dalan, the programmatic distribution was as follows instead: high-rise office blocks of 45 and 31 storeys, five office blocks of 13 storeys each, a hotel of 30 storeys.

[7] Şişli Cultural and Commercial

Center Masterplan Report, MYA Associates, May 1988. Courtesy of Osep Saraf personal archive.

[8] Minoru Yamasaki Associates Inc. correspondence, August 25, 1988. 76EK-25. Courtesy of Osep Saraf personal archive.

[9] Minoru Yamasaki Associates Inc. correspondence, August 25, 1988. EK97-1. Courtesy of Osep Saraf personal archive.

[10] Minoru Yamasaki Associates Inc. correspondence, August 25, 1988. EK97-2. Courtesy of Osep Saraf personal archive.

[11] Letter from İbrahim Cevahir to Yamasaki Associates, March 24, 1989. Courtesy of Osep Saraf personal archive.

[12] Letter from Mehmet Cevahir to Yamasaki Associates, July 13, 1990. Courtesy of Osep Saraf personal archive.

[13] "Modern architecture died in St Louis Missouri on July 15, 1972 at 3.32pm (or thereabouts)," claimed Jencks, "when the infamous Pruitt-Igoe scheme, or rather several of its slab blocks, were given the final coup de grace by dynamite." *The Language of Postmodern Architecture*. New York: Rizzoli (1977), 9.

[14] In *The Death and Life of Great American Cities* Jane Jacobs criticized the preliminary plans for the World Trade Center as an act of "vandalism" against the authentic character— "the tumbled towers and jumbled jaggedness"—of Lower Manhattan. Besides their shared problematic scales with dense populations triggering debates of planning - and destructions somehow shaping the architectural discourse - both projects were commissioned by government offices, situating the architect as a negotiator between different actors.

[15] Minoru Yamasaki Associates Inc. correspondence, August 25, 1988. EK97-2. Courtesy of Osep Saraf personal archive.

[16] The competitions Saraf and his team were awarded include 1959 Eskişehir Sports Complex (with Nişan Yaubyan), 1963 SSK Okmeydanı Hospital (with Nişan Yaubyan and Güntekin Aydoğan), 1969 CHUV University Hospital in Lausanne (with Güneri Dutipek and Akil Gonca), 1969 Hasköy Foundation Armenian Church, 1970 Niğde State Hospital (with NY and GA), 1971 Mersin State Hospital (with NY and GA), 1972 Erzurum University Faculty of Dentistry (with NY and GA), 1972 Erzurum University Nurse and Technician School and Dormitory (with NY and GA), 1974 Burdur State Hospital, 1988 Şişli Culture and Trade Center (M. Yamasaki Associate Office), 1989 Imar Plaza - Hotel (MYA), 1991 Menderes Airport Hotel (MYA), 1992 Camarat Bridge in Mecca (MYA), 1994 Media Center (with Luckenbach & Ziegelman Office)

[17] Osep Saraf, personal communication, February 4, 2021, via Zoom.

[18] Şişli Cultural and Commercial Center Masterplan Report, MYA Associates, May 1988. Courtesy of Osep Saraf personal archive.

[19] Architectural Report for the Master Plan, JG41/37. Courtesy of Osep Saraf personal archive.

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