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College of Arts and Architecture

MONTAGE AND ARCHITECTURE
A METHOD FOR TEMPORAL DESIGN

A Thesis in
Architecture
by
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ABSTRACT

Architects tend to let a spatial and physical way of thinking dominate their design process; however, if an architect can consider the temporal aspects of design as well as its physical aspects, then he or she will have a better understanding of people’s relationship with the environment. This thesis introduces TD (temporal design) Plugin as a method for architects to consider temporal aspects of architecture. In this thesis, I have defined the temporal design in architecture as designing an architectural experience from the eyes of the spectator in space while considering as many details about the experience as possible. The TD Plugin was developed by using the results of the analysis of the application of montage techniques in three architectural projects. I argue that Le Corbusier montages ‘views and perspectives’, while Tschumi montages ‘layers of the experience’ (event, movement, space), and Koolhaas montages ‘program’. My thesis demonstrates that montage techniques helped these architects to pay more attention to temporal design. TD plugin meshes with existing design techniques. It is based on fragmentation of experience into sequences and episodes, and further designing these fragments in detail by using TD plugin table. The table provides a checklist of spatial and temporal features. The final product is a succession of the views and perspectives as one walks through the sequence. For an evaluation of the TD Plugin, a pilot-workshop where three participants learned about the method and designed an art gallery was held. The results showed that ‘sequence-based design’, and the ‘spatial features checklist’ encouraged temporal design. The participants agreed that the method had increased their sensitivity toward designing a real experience. They were satisfied by the foregrounding which happened in the process of fragmentation and assemblage of the episodes. On the other hand, they were not completely comfortable in using the table, which resulted in a drastic change in their design speed. To sum up, the thesis suggests a practical view toward the topic of time and architecture. Since time and space are connected in real experiences, this thesis proposes a design plugin which aims to help architects to better design the actual architectural experience in detail. In other words, the TD plugin assists architects not only in designing the physical dimension, but in getting them to realize the temporal aspect of architecture and incorporate this in their designs.
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1 | Foundations and Background Studies

1-1 | Foundation

1-1-1 | What is Time?

“Time means many things to many minds.” One of the most straightforward and comprehensive categories of time concepts has been suggested in the field of chronemics, which refers to “the study of the concepts and processes of human temporality, as they are bound to human communication interactions” (Massey, Heath, and Leonard, 2006, p. 488-493). It introduces objective and subjective time. Objective time refers to the scientific and technological aspect of time, to our clocks and timekeeping devices. On the other hand, subjective or personal time includes “genetic/ Biological Time, Perceptual Time, Psychological Time and Sociocultural Time” (Massey, Heath & Lawlor, 2006, p. 488-493). Both subjective and objective readings of time have precedents in architectural studies, which I will discuss later.

One of the critical time-related theories of this thesis is duration; a definition of time and consciousness suggested by the French philosopher Henri Bergson. In Time and Free Will (1910, p.104), he differentiated between abstract representations of time and the pure duration by criticizing the concept of clock time. He believes that clock time is only a way of spatializing time which presents a false image of real time. For him, the actual and lived time is the time that can be stretched or compacted, depending on the condition (Bergson, 1965, chapter.1; Deleuze, 2013, p.30-34).

He also posits his concept of duration in the context of psychology (Matter and Memory, 1962) and evolutionary biology (Creative Evolution, 1944). In his book Duration and Simultaneity (1965, Chapter.2), he defines his theory in relation to physics and suggests
that the Einsteinian association between the “model of space and time” is incoherent (Bergson, 1965, p.104). He explains how *duration* can solve the paradoxes of the *theory of relativity*. Not surprisingly, his way of examining the “non-mathematical sciences by a philosophical *stance*” has been the center of controversy, which indicates the fundamental differences between philosophical and scientific ways of understanding *time* (Massey and Lawlor, 2006, p.490).

### 1-1-2 | Significance: Why Time and Architecture?

*Time* has been discussed in several architectural texts. In order to learn about the importance of studying the relation between time and architecture, it is useful to look at the work of phenomenologists in architecture. Yuhani Pallasmaa, an architect and professor, is one of the few scholars who looks at *time* through the window of *lived moment* and *perception*. In his article *Inhabiting Time*, he describes the relation between built environment and *time* by investigating the role of design in mediating one’s consciousness of reality (Pallasmaa, 2016, p.52). He states that architecture “mediates, frames, scales, relates and tunes our physical reality before our conscious awareness of it” (p.52). According to other distinguished philosophers, such as Alva Noë, human consciousness is not situated in the brain by any means, but it is out there in our relationship with the environment, in “the joint operation of the brain, body, and the world” (Noe, 2009, p.10). Pallasmaa concludes that our architecture and environment have an influence on shaping our consciousness (Pallasmaa, 2016, p.52).

Our sense of time forms an important part of our consciousness, and their interaction is interwoven on several levels (Smythies, 2003, p.52-53; Dainton, 2010; Chapter. 1-1). One
normally comprehends architecture as a visual and material work of art, a “spatial framing” of human presence and exercises (Pallasmaa, 2016, p.53). Nevertheless, we inhibit this mysterious dimension (time) as much as we dwell in space, and the built environment similarly intervenes our association with time, scaling it into the individual measure (Pallasmaa, 2016, p.53).

A perceptual approach in investigating the relation between architecture and time is also common among some scholars. According to Takatsu & Ando (2013), the left hemisphere is characterized as “the brain for temporal perception” while the right hemisphere is of “the brain for spatial perception” (p.34). The authors obtain a better understanding of people’s relationships with the environment regarding psychological reactions by separation of these two factions (p.34). They conclude that architects, designers, and planners naturally tend to have a more dominant spatial perspective (Takatsu & Ando, 2013, p.34). Additionally, they emphasize the importance of having a temporal perspective toward design along with a spatial perspective (p.34). They believe that design, limited to only one of these two perspectives of temporal and spatial perceptions, is “partial and imperfect” (Takatsu & Ando, 2013, p.34). Therefore, having temporal considerations in mind helps architects create a more comprehensive and rich experience (p.34).
1-2 | BACKGROUND STUDIES

1-2-1 | Our Consciousness over Time in History

Architecture, like other art and sciences, reflects the drastic changes in our awareness of time through history. "Experiential time" has continuously transformed from a "motionless or slow presence" to a "chain of detached moments that disappears at increasing velocity" (Pallasmaa, 2016, p.52). Together with this "experiential acceleration", the actual measuring of time has revolutionized as well (Pallasmaa, 2016, p. 52). In the sixteenth century, the accuracy of timekeepers was about ‘half an hour’, while with the advent of the railway industry in the early years of the nineteenth century, ‘minutes’ were presented as a new measure of time in everyday life (Pirsig, 1984, p.7-8). Nowadays, advanced timekeepers tell the time by the second, and the application of numerical digits, as opposed to clock hands, has terminated the rational association of time with the rotation of the sun (Pirsig, 1984, p.7-8). In other words, “cyclical time has turned into linear time”(Pallasmaa, 2016, p.52).

1-2-2 | Time in Architectural Literature

In the previous section, some of the phenomenological and perceptual studies which explain the relation between time and architecture and their probable influences on each other were reviewed. In the next step, the meaning of time in architectural literature is defined further. There are several different points of view when it comes to studying the subject of time in architecture. In the following paragraphs, some of these readings of time such as various lives of buildings, timelessness, weathering, lightness and mobility, and space-time will be discussed.
In a large time scale, many studies consider architecture as an object in the flow of time and history. Stoner, a professor in architecture, in his article ‘The Nine Lives of Buildings,’ considers time as a term related to the ‘lifespan of the buildings’ and discusses the issues related to each phase\(^1\) (Stoner, 2016, p.19-23). Other topics investigated by other authors include ‘timelessness,’ and ‘temporary architecture’. Leon Battista Alberti was the first intellectual and designer to officially manifest the perfect and ideal building in Western culture like the one that is quite similar in detail and structure to the original design at every moment of perception. In this regard, the success of a piece of architecture is determined by its immutability (Trachtenberg, 2005, Chapter.2). Subsequently, ‘timeless’ is a complement for a building which suggests “a state of being independent of time’ (Frank, 2016, p.8). This term can refer to either a style-less architecture or to an everlasting and unchangeable structure over the passage of time (Franck, 2016, p.8 and p.12). However, architecture can neither be categorized with a style of a particular period nor be ‘immune to the passing of time’ (Frank, 2016, p.8) as Mostafavi and Leatherbarrow state: “Buildings persist time; yet, they do not’ (Mostafavi, D Leatherbarrow, 1993, p.4).

Franck considers temporality as an intrinsic feature of all architectures and treats architecture as an ‘evolving and uncertain process’ which extends over time, rather than as “an immutable, pristine object imprisoned by a single moment” (Frank, 2016, p.10). He acknowledges architecture as a temporal paradigm, meaning that it is not “fixed, static objects rooted in a single moment and impervious to change, but mutable subjects much

\(^1\) Stoner recognizes nine phases in the life a building: Abandonment; Demolition; Deconstruction; Preservation, Conservation and Restoration; Renovation and rehabilitation; Adaptive Reuse; Reoccurrence; Pure expression; and Resurrection (Stoner, 2016, p.19-23).
affected by everyday use, intentional intervention and inevitable material decay’(Franck, 2016, p.10).

In the past, several long-lasting buildings tried to be timeless by embracing a seemingly unchanging appearance featured by “solidity and weightiness”(Franck, 2016, p.12). In contrast to this notion, architecture with its planned lifespan of a few months, features “lightness and mobility”(Franck, 2016, p.12). Frank draws our attention to the fact that the idealization of timelessness architecture has gone away in modern architecture since we can see a lot of temporary structures nowadays. The growing demand and advance of temporary installations, specifically in urban public spaces, is a “new valuing of the impermanent and ephemeral” architecture which has always been overshadowed by their permanent and everlasting competitors in Western architecture (p.12); (on urban spaces and time: Bishop & Williams, 2012; Hou, 2010; Oswalt, & Missewitz, 2013; Sasser, 2016; Chase, Crawford, & Kaliski, 1999; Franck & Stevens, 2013; van Schaik, 2015).

Finally, one of the most famous and remarkable works on the topic of time and architecture is Space, Time, and Architecture by Siegfried Giedion (1967), who is a historian and critic of architecture. This book steps beyond the conventions of a historical analysis and is considered as a preliminary attempt for developing the theoretical foundation of modern architecture (Lee & Kim, 2008, p.15). In this project, Giedion recognizes the need for the development of a new concept in modern architecture, which he defines as space-time. According to Giedion, the advent of the notion of time and a fourth dimension to architecture is a major alternation in the earlier idea of space in both architecture and painting, and this alternation makes a modern work distinguishable from traditional works (Giedion, 1967, chapter.6). In his book, Giedion has attempted to draw an analogy between the concept of time in modern science and different fields of art especially painting since 1910 and introduced a parallel
concept in modern architecture. In modern society, time became an essential part of modern life when mechanical clocks came into wide use in the 1900s (Lee & Kim, 2008, p.16). The discovery of ‘non-Euclidean’ in 1830 and the theory of relativity by Einstein in 1905 lead to a new understanding of the concept of time and space, not as two separate entities, but time relative to space (Lee & Kim, 2008, p.16). Giedion himself borrowed the term space-time from Hermann Minkowsky, the Lithuanian-German mathematician who first developed the theory of ‘four-dimensional space–time’ in geometry (Hawking & Jackson, 1993, Chapter.2). In modern painting, Giedion argues that what differentiates a three-dimensional and perspective-based after-Renaissance painting from a modern one is the arrival of the concept of space-time in painting from modern science. The new fourth-dimensional paintings can be seen in the works of Cubism and Futurism (Giedion, 1967, Chapter.1).

Finally, in chapter six Giedion argues that the same space-time concept has become part of the field of architecture since 1910. He sees this idea in architecture in two ways: “simultaneity” and "movement". According to Giedion, simultaneity is a feature of modern architecture, expressed as “transparency, overlapping and penetration of spaces – enables spaces” that allows for seeing the various spaces, exterior and interior that could not be seen all together in a traditional building, at the same time (Giedion, 1967, Chapter.6).

He goes on to state that simultaneity in architecture can also be seen in cubism painting, where several aspects of the same object are revealed at once and in one, two-dimensional surface. The other way Giedion defines space-time in architecture is in the form of movement. According to Giedion, projects such as the Bauhaus building in Dessau cannot be understood at once and from a single viewpoint, but one should walk around to develop an idea of its form through various perspectives. Giedion believes since Bauhaus illustrates a movement in
space, it incorporates time. The following table, prepared by Lee & Kim, the authors of Reinterpretation of S. Giedion’s Conception of Time in Modern Architecture (2008), summarizes Giedion’s Explanation of the Space-time concept through four modern projects (fig. 1-1).

<table>
<thead>
<tr>
<th>Keyword</th>
<th>Building</th>
<th>Giedion's explanation</th>
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</table>
| Simultaneity | Bauhaus - Walter Gropius | The glass curtain flows smoothly around the building, the corners showing no vertical supporting or binding members.  
There is the hovering, vertical grouping of planes which satisfies our feeling for a relational space, and there is the extensive transparency that permits interior and exterior to be seen simultaneously, on face and on profile, like Picasso’s "L’Arlesienne" of 1911-12: variety of levels of reference, or of points of reference, and simultaneity – in short, the concept of space-time. (p.493)  
Due to the glass walls of the terrace and living room, the occupant can be brought into connection with both the interior and the outdoors.  
The use of a ramp links different horizontal levels with the interior and exterior spaces.  
It is impossible to comprehend the Savoye house by a view from a single point, quite literally, it is a construction in space-time. The body of the house has been hollowed out in every direction: from above and below, within and without. A cross section at any point shows inner and outer space penetrating each other inextricably. (p.529) |
| Movement | Bauhaus - Walter Gropius | These cubes are juxtaposed and interrelated. Indeed, they interpenetrate each other so subtly and intimately that the boundaries of the various volumes cannot be sharply picked out. The views from the air show how thoroughly each is blended into a unified composition. The eye cannot sum up this complex from one position; it is necessary to go around it on all sides, to see it from above as well as from below. This represents a new dimension for the artistic imagination, an unprecedented many-sidedness.  
The Bauhaus was the only large building of its time that was so complete a crystallization of the new space conception. (p.497) |
|          | I.I.T - Mies van der Rohe | The twenty-four buildings stand in a rectilinear relationship to one another. At the same time, they are so disposed that an all-embracing space is created, though not visible at one glance – a space that can only be slowly perceived by including the dimension of time; that is, by movement. (p.603) |


Space, Time, and Architecture (1967) had a significant impact on developing our mindset about the concept of time in architecture. However, there have been few studies which evaluate and critique this type of interpretation (Lee & Kim, 2008, p.15). According to Lee and Kim, Space, Time, and Architecture specifies time as a ‘physical and objective’ concept,
and not as a ‘continual experience’ capable of generating stories (p.21). It considers time as a “flow of objective and physical time” which is only based on space instead of human experience (Lee & Kim, 2008, p.21): “What is missing in Giedion’s vision is the subjective experience of time” (Willis, 1994, p.126). In his book, Giedion imports a symbolic interpretation of time into architecture, which was suggested by modern painting movements such as Futurism and Cubism (Lee & Kim, 2008, p.19). However, “Futurism and Cubism present not time itself, but time reflected in objects, which is an indirect symbol” (p.19). Nevertheless, architecture is more of an experience, where the symbolic reading of time is not a critical matter. Lee and Kim criticize Gideon’s approach in assimilating the symbolic reading of time in modern painting into architecture and believe that architecture and painting cannot demonstrate the space-time concept in a similar way. “A simultaneous experience at a fixed point, as in Cubism, and the composition and form of modern architecture that necessarily require the viewers’ movement in order to perceive it, which Giedion points out as the characteristics of space-time, are hard to consider as an experience of time, though it is possible to be meant as a symbol of time as in painting” (Lee & Kim, 2008, p.19).

1-2-3 | Time and Change

According to Le Poidevin, a professor of metaphysics at the University of Leeds, time is used to compare “duration of events and intervals between them” by either evaluating rates of change in “material reality” or the “conscious experience”(Le Poidevin, 2000, Section.3). Therefore, the definition of time itself suggests its strong connections with the concept of change.

Time is tied to change. Consequently, it can be argued that various readings of time are due to the diverse views of scholars about the nature of change. Change can be interpreted and
recognized in various ways in the context of architecture. A building can be considered mutable and changeable since many scholars have noted that it is “an open and unstable system composed of flows of energy and matter” (Groak, 2002, p.17). One can also see architecture as “a series of layers subject to change such as site, structure, skin, services and space plan” (Brand, 1994, p.12-23) or “a dynamic and adaptable system intended to accommodate change”(Schmidt et al, 2009, p.1). In another view, architecture is a “mutable subject much affected by everyday use, intentional intervention and unavoidable material decay” (Franck, 2016, p.10). “Finishing ends construction, weathering constructs finishes” (Mostafavi & Leatherbarrow, 1993). Also, change in architecture can be considered in the context of going from one stage of life to another: “It has lives as well as a death – an ending that can also be designed in advance” (Cairns & Jacobs, 2014). Depending on what view one possess toward the change in architecture, the interpretation of the concept of time in architecture would vary.

1-2-4 | Time and Movement

Another interpretation of time in architecture which, in comparison to other readings of time, has been overlooked, is the subjective experience of time or perceptual time. Pallasmaa is one of the scholars who emphasizes the importance of looking at the phenomenon of time in architecture from the viewpoint of the “human scale experience” (Pallasmaa, 2016, p.52). According to Pallasmaa, we are facing an adverse situation where the prosperity of all business operations depends on timing and speed, but the real approach toward time is missing. In his words: “while everything is timed, time itself as an experiential and mental dimension is being lost” (Pallasmaa, 2016, p.54). Since architecture is more about “the world, life, and existential meaning” (Pallasmaa, 2016, p.52), time should be addressed on the scale
of human experience. The nature of this reading of time is, therefore, perceptual and experiential. Perceptual time is “someone's own perception of the duration of the indefinite and continuous unfolding of events”. It is in contrast to objective time, which is the “scientific and technological aspect of time, to our clocks and timekeeping devices”. (Massey, Heath, and Lawlor, 2006). Perceptual time is also called subjective time and spatial present in the work of psychologist and philosophers such as E. Robert Kelly (Kelly, 1882), Francisco Varela (Valera, 1999), and Edmund Husserl (Andersen, 2009). This thesis looks at perceptual time as it relates to architecture, which is featured to be non-linear, based on experience and shapeable by the environment.

1-3 | Problem

1-3-1 | Question: Temporal Design in Architecture

The problem is that the architect designing with tools such as plan, elevation, and section, will not be able to easily take temporal considerations into account because the medium distracts him/her from the real sense of space, which includes the temporal aspect of architecture. That’s why I believe considering these temporal aspects is possible through planning the experience of space from the viewpoint of the moving spectator.

In the previous sections, I examined the literature of time as it relates to architecture. I indicated perceptual time as one of the less investigated topics in this field and the importance of having an experiential view toward time as viewed by scholars such as Pallasmaa. Additionally, I argued that perceptual time, time perceived on the human scale,
depends on the movements of the eye and body through space. This section will discuss perceptual time from a designerly point of view and define a concept temporal design.

The term temporal design is borrowed from Takatsu and Ando (2013), who believe considering temporal design along with the conventional physical design helps to create a fuller and richer architectural experience and, consequently a better architecture (Takatsu and Ando, 2013, p.34). This term has also been used by interaction designers when investigating the effect of digital networks on the perception of time and “everyday rhythms” (Pschetz, 2015, p.58). For clarifying the concept of temporal design, I look at the relation of time and change. It is argued that perceptual time as an experience-based phenomenon is tied to change in the perception of the space while the spectator’s body and eyes move through space. In other words, designing what we perceive while moving in architecture, not only calls for designing form but also designing time. Therefore, designing architecture according to different modes of movement which occur while experiencing architecture (movement of the body through the space and movement of the eyes), is the same as considering the temporal aspects of architecture.

Definitions such as temporal design, meaning “design with having time in mind”, are vague and not accurate descriptions, while in this thesis I am trying to formulate a more practical and methodological definition. It is asserted that the conventional system of design and presentation through plan, elevation, and section distracts the designer from the real sense of space, for instance its temporal characteristics. That’s why I believe temporal design is possible through planning the experience of space from the viewpoint of the moving spectator. Therefore, in this thesis, by temporal design, I mean designing an architectural experience from the eyes of the spectator in space and considering as many details about the experience as possible. There is no need to say that these details are not the same as
physical and constructional details, but rather they are the type of details enhancing the quality of the experience. Those details include, but are not limited to, the movement, narrative, events, change of perspectives, and rhythm. When one begins to design a real experience, not only do the forms and their perception matter (physical dimension), but also important are time and the way in which it is perceived (perceptual time and temporal dimension). I call a design method which highlights the development of temporal aspects along with physical aspects the temporal design method.

1-3-2 | Method: Architecture, Cinema, and Montage

1-3-2-1 | Tracing Temporal Design in Architectural Projects

This section discusses the strategy for choosing contemporary projects and analyzing them in order to learn about their temporal design method. Since none of these projects directly discusses time, I need to employ a medium connecting the concepts of time and architecture together. All architectural elements to some extent reflect the concept of time. The simplest example can be the decay of the materials or the change of light over the passage of time. However, this thesis has an experiential view point toward time and investigates the concept of time in the experience and perception of the moving spectator in the space, while light and material are all small parts of our experience of architecture. In searching for similar experiences to architecture, perhaps the experience of watching a film is undoubtedly the most similar. Later in this section, I will argue that this medium is cinema and montage technique. Therefore, I have chosen projects, with montage techniques embedded in them to learn about temporal design.
In addition to the theoretical work of phenomenologists on the importance of perceptual time as it relates to architecture, there are small scale projects such as exhibitions which bring to the fore the experiential qualities of architecture. The example of Eameses multi-screen architecture, 1959 American National Exhibition in Moscow, (Colomina, 2013, p41-60) shows how analysis of reviews can lead us to understand temporal qualities of space. Nevertheless, there are still projects that directly target the area of time perception. Norman Bel Geddes’s Futurama exhibit at the 1939 World’s Fair in New York (Adams, 1976, p.22-24,) for instance, is one of those projects. However, it can be observed that the number of small-scale projects, such as pavilions, which focus on the experiential aspect of time and space, and not a symbolic approach, are quite limited. These projects were all temporary exhibitions held many years ago and are not available to be experienced today. Also, the number of reviews analyzing these projects in the light of perceptual time are quite limited. Yet we need to have architectural projects along with texts to develop a method for temporal design in architecture.

Even though several architects may have incorporated temporal considerations in their work, it is difficult to distinguish these projects because architects may have applied these considerations unintentionally, or even if they are seeking time-related investigations in their projects, they do not necessarily provide architectural texts or use the same keywords. After examining the design approach between several architects who appear to be concerned about time, I noted that all of them had a feature in common, which is relating their work to the cinema. This finding suggests a new view toward studying time in architecture, which is questioning the topic of temporal design in architecture from the view point of the application of cinematic techniques.

The connection between architecture and cinema is not new. In modern era with questioning the formal and diverse approaches to architecture new approaches such as a cinematic view
to architecture began to appear. “It seems that all the arts, throughout the centuries, tended
toward cinema. Conversely, cinema helps us to understand their methods” (Bruno, 1997, p.2).
According to Sergei M. Eisenstein, “Film’s undoubted ancestor…is -- architecture” (Bruno,
1997, p.1). Bruno also recognizes cinema as an architectural practice: “Cinema is an art form
of the street, an agent in the building of city views. The image of the city ends up closely
interacting with filmic representations. The streetscape is as much a filmic construction as it is
an architectural one” (Bruno, 1997, p.2). Specifically, when discussing temporality in
architecture, the analogy between architecture and cinema becomes quite appropriate.
According to Pallasmaa (2001), film and architecture have similar elements of Time and
Space.
We discussed how each interpretation of time is tied to a certain idea about change, and
now the question is about the nature of the change which is associated with perceptual time.
Philosophers and psychologists have emphasized the role of the body and its movement in
space in the perception of the real world. According to Pallasmaa (2012, part 2), the eye
cooperates with the “body and the other senses” to “strengthen and articulate” the sense of
space in individuals. In the same way, Gibson (1966, p.50) categorizes the senses in five
sensory systems: “visual system, auditory system, the taste-smell system, haptic system and the
orienting system”. According to Bruno Zevi, the sense of perceptual time is more related to
the orienting system. In his own words, “time as an indispensable element in every work of
architecture is based on movement” (Apollinaire & Read, 2004, part one: on painting). Thus
subjective and perceptual reading of time as it relates to architecture is tied to the spectator’s
movement in the space (e.g. walking in a building).
When looking at the cinema, we notice the concept of time is strongly tied to montage. One way cinema can help us to learn about temporality in architecture is to look at the application of montage techniques in architecture. The Oxford Dictionary describes Montage in cinema as "the process or technique of selecting, editing, and piecing together separate sections of film to form a continuous whole" and montage in general as "the technique of producing a new composite whole from fragments of pictures, text, or music" (Dictionary, 2004).

Eisenstein was a film director, scholar, and pioneer in the application of a specific technique of film editing, called montage. In his main books, The Film Form and The Film Sense, he describes the importance of montage techniques in conveying the rhythm and meaning in the film, which he believes to be the essence of the cinema (Bergan, 2016). An essential feature of his cinema was highlighting "disjunction and fragmentation" to incite the audience (Eisenstein, 1949, p.72-80). Montage as a dynamic editing tool is applied to create rhythm in a film by founding spatial and temporal relationships within a movie (Eisenstein, 1949, p.72-80). Eisenstein believed that meaning in motion pictures is generated by the collision of opposing shots (Eisenstein & Leyda, 1949, p. 72-80; Eisenstein, 1949, chapter.4). According to Roger Ebert, Eisenstein' secret in creating the strong impact on the viewers is by the juxtaposition of contradicting shots and not settling for the conventional, "smooth unrolling of images"(Ebert, 2012, p.1).

One of the most prominent exhibitions of the power of montage is seen in Eisenstein's 1925 silent movie Battleship Potemkin in the scene famous for The Odessa Steps Sequence in which soldiers slaughter the Odessans. In this scene, the montage permits Eisenstein to control the viewers’ impression of time by extending the people’s movement down the steps for a much longer time than it takes in reality (Fig.1-2).

We conclude that montage is one of the important cinematic tools for creating rhythm and a sense of time, and establishing spatial and temporal relationships in movies. It is based on the process of fragmentation and the consequent assemblage of the contradicting and unrelated shots. In the next chapter, I investigate the works of three architects sensitive to the concept of cinema and montage to see whether their application of montage techniques distinguishes their works as a form of temporal design.
The analysis of the projects through the window of Montage technique will help to learn about temporal design. In the last chapter, I will suggest a design method to systematically consider temporal design in architecture. It will be tested through a pilot workshop.

2 | Project Analysis: Architecture | Montage | Temporal Design

2-1 | Le Corbusier | Villa Savoye

2-1-1 | Introduction

In this chapter, I start the montage analysis with Le Corbusier. His sensitivity toward the spatial perception of the moving spectator and his familiarity with the concept of montage makes him an excellent candidate for investigating the temporal design and providing a foundation for further discussion. During this chapter, I tried to provide a different reading of Le Corbusier’s ‘architectural promenade’ from its traditional readings, through the analysis of Villa Savoye. In this reading, the similarities between his architectural design method and Eisenstein montage technique in cinema is emphasized. Finally, I conclude that this montage technique, in the form of a promenade, has allowed Le Corbusier to bring some aspects of temporal design to his work.
2-1-2 | Le Corbusier and movement

Seeing architecture as a sequence of images and the importance of the perception of architecture while moving through it has been noticed by Eisenstein, Le Corbusier, and Gertrude Stein, among others. As Le Corbusier states: “... architecture is appreciated while on the move, with one's feet... while walking, moving from one place to another....A true architectural promenade [offers] constantly changing views, unexpected, at times surprising” (Bruno, 2002,p.58). Finally, Gertrude Stein asserts that “geography includes inhabitants and vessels” (Dickie, 1997).

In her book Le Corbusier and the Architectural Promenade, Samuel argues for the extent of Le Corbusier’s preoccupation with the flows of movement in space by analyzing his drawing language over the years (Samuel, 2010, chapter.1). Samuel goes on to state that Le Corbusier’s sketches in his early years of work are always full of arrows specifying various paths and routes in his projects (Samuel, 2010, chapter.1). Even though Le Corbusier gave up on using arrows, he continued to envision himself in the space by applying “axonometric projections” to better explain the circulations (Samuel, 2010, chapter.1). Besides, Le Corbusier's sketches always indicate the traces of continuous lines repeated over and over again showcasing the movement of everyday life (chapter.1). Finally, most of his projects are coupled with numerous “rough perspectival sketches” demonstrating the importance of experimenting with different views to design the best experience (chapter.1).

The "promenade design" is a leading title in the dialect of modernism (Bruno, 2002, p.58). Even though Le Corbusier introduced promenade architecturale (Benton, 1987, p.38), the term was not his own invention. The picturesque language, the idea of unfolding “differential perspectives of views” for “spectatorial pleasure”, was first established in the design of English gardens (Fig. 2-1) (Bruno, 2002, p.58). In the picturesque garden, as the reader moves through
space, the rhythm of montage sequence of space unfolds as the observer’s view changes from perspective to perspective (Bruno, 2002, chapter.6). Later, in the modern era, Le Corbusier and Eisenstein applied their own interpretation of promenade (chapter.6).

According to Samuel (2010) Le Corbusier replaced the word circulation (typically used in his preliminary works) with promenade. She argues that Le Corbusier’s promenade follows a step by step repeatable pattern in all of his projects: “Like many other aspects of Le Corbusier’s architecture, the promenade followed a formula, adjusted slightly each time to fit in with the demands of site and program, but similar in every case” (Samuel, 2010, chapter.1). The pattern she argues that repeats in all Le Corbusier’s projects is as follows:

1) “Introduction (threshold)
2) Rise (sensitizing)
3) Questioning (savoir habiter)
4) Reorientation
5) Culmination (ecstatic union)” (chapter.1).

Although Samuel’s theory seems to be a valid argument, it still does not explain all the aspects of Le Corbusier promenade. Later in this section, I will discuss the relation between Le Corbusier and cinema which helps to develop a different understanding of promenade related to our definition of temporal design.
As stated before, the method of this thesis is to investigate the concept of temporal design in architecture through the window of montage technique. Le Corbusier’s enthusiasm for cinema and montage goes back to the 1920s (Kiyak, 2003, p.163-164). In 1928, he met Russian filmmaker Sergei Eisenstein in Moscow and visited the private screening of some of his movies (Kiyak, A. 2003, p.163-164). Le Corbusier was more than familiar with Eisenstein’s work. Indeed, Eisenstein’s montage theory has influenced his architecture drastically (Samuel, 2010, chapter.1). Le Corbusier believed that “architecture and film are the only two arts of our time”, and he compares his process of thinking with Eisenstein’s: “In my own work, I seem to think as Eisenstein does in his films” (Bruno, 2002, p.58).

Le Corbusier’s emphasis on design of the movement, through drawing arrays on plan and multiple perspectives in his design process, is similar to Eisenstein’s approach toward architecture in his paper Architecture and Montage (1989). Eisenstein believes that “an architectural ensemble... is a montage from the point of view of a moving spectator....”
(Eisenstein, 989, 111-127). He clarifies his position by his well-known example of the Acropolis (Fig.2-3). In this example, Eisenstein walks around the Acropolis complex building and draws perspective as he is moving on the main routes. He draws the analogy between a film viewer's experience and a moving spectator's experience and states both experiences are formed by the assemblage of scenes (Eisenstein, 1989, 11-127).

(Fig.2-2). The analogy between perception of architecture and montage. Source: Eisenstein, S. M., Bois, Y. A., & Glenny, M. (1989). Montage and architecture. Assemblage, (10), page: 4, 5, 6.

“Man walks in a straight line because he has a goal and knows where he is going; he has made up his mind to reach some particular place, and he goes straight to it. The pack-donkey meanders along, meditates a little in his scatter-brained and distracted fashion, he zigzags in order to avoid the larger stones, or to ease the climb, or to gain a little shade; he takes the line of least resistance...The Pack-Donkey’s Way is responsible for the plan of every continental city.” (Corbusier, 1987).
We observed Le Corbusier’s attention to the perception of architecture while moving through it, as well as some of the similarities between his work and Eisenstein’s montage technique. Considering these observations, I can argue for another interpretation of his architectural promenade. Le Corbusier’s architectural promenade, regardless of what Samuel calls the “the internal circulatory system” of architecture (Samuel, 2010, 61-68), is not a giant path beginning from the entrance door, ending on the roof (Fig. 2-4). Samuel argues that Le Corbusier in The City of Tomorrow and its Planning, written in 1929, believes that movement pattern should be a straight linear path instead of a complex circulation (Samuel, 2010, chapter.1). Some critics see this as a contradiction in his work because they believe promenade is essentially associated with spiral stairs, ramps, and twisted circulation. However, I believe a new reading of promenade would solve all these issues. In this reading, the promenade, which shares a lot of similarities in its method of creation with montage technique, is not a complex system of ramps and corridors and spirals connecting two destinations from the first floor to the roof. It seems that he has broken down the circulation system into small paths and then treated these spatial modules individually. Therefore, the same as the promenade in English gardens and the montage technique in cinema, sequences of images are assembled to create a whole experience. In a film, these pieces are the shots. Their equivalent in architecture, which can be called paths, spatial shots, or episodes, are the type of movement Le Corbusier is talking about as promenade, and according to him, should not be complicated but well designed.
(Fig.2-3). **Seeing Le Corbusier promenade as a giant circulation system.** Retrieved from: http://visualize.us/presumably_a_of_the_kommando_kraus_representation_modelling_circulation_diagram_villa.savoye.picture_sBSD.html

Therefore, according to Le Corbusier’s design drawings and writings, I conclude that perceiving architecture while moving through spaces was one of the principal concerns in Le Corbusier’s works. Furthermore, the application of montage techniques in his work suggests his definition of promenade may be slightly different from what is typically known (Fig.2-4). I believe in his promenade, he consciously designs perspectives to influence the viewer similar to what filmmakers do through the technique of montage: putting a sequence of unique views and perspectives next to each other and unfolding them as the observer moves through the space. Now, I analyze the experience of Villa Savoye to see whether the montage of unusual and varying perspectives has happened to support our argument.

2-1-5 | **Villa Savoye**

Promenade appears for the first time in Le Corbusier’s description of the villa Savoye (Bruno, 2002, p.50-59). As an excellent example of Le Corbusier’s promenade, the project “offers aspects always varied, unexpected and sometimes astonishing” (Corbusier, Jeanneret,
1929). Giedion, whose time-space theory I previously discussed, in an introduction for one of
the volumes of Oeuvre complete, refers to Villa Savoye to prove his case that Le Corbusier is
at “the very center of contemporary architecture” (Tournikiotis, 2007, p.11).

There are a lot of works on Villa Savoy’s architectural promenade. Most of them tend to think
of its promenade as a large system of circulation. Samuel has even suggested a formula for
Le Corbusier’s promenade and later analyzes Villa Savoye according to her pattern. Locicero
is another scholar who considers promenade in Villa Savoye, like in some other of Le
Corbusier’s projects, a big journey from the entrance to the roof (Fig.2-4) (Samuel, 2010, p.114-
127). His notion toward promenade in Villa Savoye is summed up in the following:

“One of the key ideas about this house is the notion of promenade, the way you approach,
arrive at and move through the house. While there is a beautiful spiral stair that links the floors,
the drama is provided by a ramp that leads from the entry up to the main salon. From there,
one exits out onto the terrace and resumes moving up the ramp to the roof deck. This path
through the building ends at a framed opening that looks out over the landscape in the

In order to prove that to Le Corbusier, designing the movement experience matters as much
as a central system of circulation, I do a frame by frame analysis of Villa Savoye. This is a
method of reading architecture which Eisenstein introduces in Montage and Architecture
(Eisenstein, Bois & Glenny, 1989, p.116-119). Also, at the end, the frame by frame analysis lets
us see whether the traces of montage technique are embedded in his promenade and if
they would help us to learn about temporal design.

These is the step by step procedure of analysis, inspired by Eisenstein.
1- **Drawing the main circulation pattern on each floor** (Fig.2-5).

2- **Defining destinations and turning points on the plan**: Destinations are the center of each activity or program. Thus the heart of each space allocated to an individual program can be considered as a destination. Turning points are spots where a path breaks and a rotation or change of view happens. Figure 2-5 illustrates the destinations and turning points.

3- **Recognizing episodes**: Each piece of the path is called ‘an episode’, and is the equivalent of a cinematic ‘shot’. The spectator experiences episode A-B through moving from Destination A to Destination B (Fig.2-6).

4- **Drawing the views**: The perspectives are extracted from walkthrough videos of the project I am looking at the shreds of evidence showing that the architect has carefully designed the sequence of these perspectives from the view point of the reader of the space. Figure 2-7 illustrates the details of the view analysis (Fig.2-8).

(Fig.2-4). Circulation pattern on the second floor. Right. (Fig.2-5). Episode A-B. Source: Author. The base plan drawing is adopted from: [http://insideinside.org/bathroom-villa-savoye-82-rue-de-villiers-78300-paissy-france/](http://insideinside.org/bathroom-villa-savoye-82-rue-de-villiers-78300-paissy-france/).
(Fig.2-6). Perspective analysis of the first floor. Source: Author. The base plan drawing is adopted from:

http://insideinside.org/bathroom-villa-savoye-82-rue-de-villiers-78300-poissy-france/. The sequence of photos are adopted from a walkthrough video of the Villa Savoye, retrieved from:

https://www.youtube.com/watch?v=75YxdWR-M0k.
(Fig.2-7). Spatial episodes and major views of the first floor - Villa Savoy. Source: Author. The base plan drawing is adopted from: http://insideinside.org/bathroom-villa-savoye-82-rue-de-villiers-78300-poissy-france/
(Fig.2-8). Analysis if the views in each spatial episode. Source: Author. The sequence of photos are adopted from a walkthrough video of the Villa Savoye, retrieved from:

https://www.youtube.com/watch?v=75YxdWR-M0k.
2-1-6 | Le Corbusier method of temporal design

The perspective analysis of Villa Savoye (Fig. 2-8; Fig. 2-9) demonstrated a remarkable feature in his architecture, which is the constantly changing, unexpected, and surprising sequence of the views (Fig. 10), as one is experiencing the space. Since it is a similar experience which is created in movies through montage, it can be concluded that Le Corbusier has somehow used the same method for creating these sequences. Historically, Le Corbusier’s method of drawing, which includes numerous perspectives from various views and the importance of movement, as well as his familiarity with Eisenstein and his appreciation for his montage technique, support this argument.

In Villa Savoye, the architect designs the real experience of space from the viewpoint of the spectator, which includes the design of temporal aspect as well as the physical aspect. We know movement as the generator of a sense of time in architecture. Le Corbusier considers movement as the basis for his design and designs the other elements of the architecture according to it. He fragments the circulation into spatial sequences and designs valuable perspectives for each sequence. This method allows for designing the combination of unexpected and stunning scenes which are continually arising to the viewer. The fact that Le Corbusier was aware of the narrative stance at all stages of the design helps him to get closer to the idea of temporal design, and the method of breaking down the architectural experience into pieces is indeed a suggestion for creating such temporal architecture.
2-2 | Bernard Tschumi | Parc De La Villette

2-2-1 | Introduction

Tschumi and Le Corbusier learn from Eisenstein’s doctrine but in two different ways. Tschumi is more attracted to the montage as it is used in the process of filmmaking. As argued in the previous section, Le Corbusier seems interested in the experience of film and its similarities with the experience of architecture. However, Tschumi is concerned with the usage of montage technique in the process of creation. Therefore, he invents a new language for architectural design based on “Eisenstein’s film scripts and Moholy-Nagy stage directions” (Holt-Damant, 1998, p. 48-51).

Tschumi is the one of the most famous architects who has applied montage techniques often in architecture (Holt-Damant, 1998, p. 48-51). According to Tschumi, the experience of architecture should be seen as a sequence of events or a combination of various images. He feels that there is no such a thing as self-contained architectural images, but that they rely on other frames to smoothly illustrate the space (Tschumi, 1981, p.45). In this thesis, I will look at the Manhattan Transcripts as a general source and the Park De La Villette project as a practical example. This chapter aims to investigate various applications of montage technique in different layers of Tschumí’s theory and practice.

2-2-2 | Manhattan Transcripts

Manhattan Transcripts (1976-1981), a theoretical project by Bernard Tschumi, is organized in four categories under the titles of “The Park, The Street, The Tower, The Block” (Tschumi, 1981, p.8). Despite what this organization may suggest at first sight, Transcripts does not represent
“a typological analyses of historic forms” but rather four different type of spaces for investigation (Dagenhart, 1989, p.84-90). Tschumi does not consider a representing and ‘mimetic’ role for the Transcripts. Neither the buildings nor the events are real but, rather, they are a subjective reading of the reality (Tschumi, 1981, part.4).

He breaks a single spatial experience into episodes of “events, movements and spaces”. Each chapter contains “sequential sets of drawings demonstrated in a triple arrangement” of space” (or objects), “events” and “movement” (Tschumi, 1981, chapter.1), incorporating “three disjunctive levels of reality confronting architecture and the city” (Dagenhart, 1989, p.84-90). The Transcripts represent “Spaces/objects” by “abstracted drawings taken from plans and photographs”; movements are represented by “notational diagrams (e.g. choreography, football, etc.)”; events are represented with “fragments of newspaper photographs” (p.84-90)”. “The world of objects, composed of buildings abstracted from maps, plans, photographs; the world of movements, abstracted from choreography, sport, or other movement diagrams; the world of events, which is abstracted from news photographs” (Tschumi, 1981, part.4)”. Fig. 2-11 illustrates the structure of the episodes in details, according to Dagenhart’s analysis.

2-2-3 | Montage as an architectural language
There are various views toward the objective of the *Manhattan transcripts*. According to Dagenhart (1989), the main concern of Tschumi in *Manhattan Transcripts* is questioning the theory of form and program (p.84-90). He defines form as “objects and spaces” and program as “human experiential and social realities” (p.84-90). According to Dagenhart, Tschumi argues against “the unification of form and program or the reduction of one into the other” (Dagenhart, 1989, p.84-90). While Dagenhart considers the issue of reduction of form or program to each other as the main objectivity of *Manhattan Transcripts*, most of the authors, including Tschumi himself, believe *Manhattan Transcripts*’ concern, more than anything else, is the language of architectural representation. He tries to suggest a new language which addresses “things normally removed from conventional architectural representation, namely the complex relationship between spaces and their use; between the set and the script; between the type and program; between objects and events” (Tschumi, 1981, part.4). In other words, *Manhattan Transcripts* is an attempt to go beyond the limits in the language of architectural presentation and designing process, and offers another reading of architecture by questioning the traditional way of designing through plans, sections, axonometric, and perspectives (Tschumi, 1981, Part.4). According to Tschumi, our architectural language and methods of presentation, even in their most precise and generative version, lead to a “logical reduction of architectural thought” (Tschumi, 1981, chapter.1). In his own words: “The limits of my language are the limits of my world” (chapter.1). Therefore, in Manhattan Transcripts, he suggests a new “tripartite mode of notation” for presenting the spatial experience (Tschumi, 1994, chapter.1).

The project can be seen as the reverse of the montage process. He fragments the experience into three layers and studies these layers separately. In *Manhattan Transcripts*, as a theoretical project, he does not go any further from fragmenting the layers of reality and analyzing them
through diagrams. However, as we see later, in a design project such as Park De La Villette, there is a final step which is quite similar to cinematic montage, where he takes the analyzed and designed pieces and reassembles them back together to shape the final project.

“Manhattan Transcripts eliminates all that is inessential to the architecture of the city. Spaces, movements, events are contracted into the fragments absolutely necessary to outline the overall structure. Since each frame is isolated from the next, architecture can begin to act as a series of surprises, a form of architectural jump cut, where space is carefully broken apart and then reassembled at the limits. Thus, space can follow space, not necessarily in the order normally expected, but in a series of dramatic revelations that can announce a new spatial structure”. (Tschumi, 1981, chapter.1)

Now as a shift from Manhattan Transcripts (1978-81) to Park De La Villette (1982-83), I will investigate the same concept of montage and temporality in Tschumi’s work. He has consciously participated in Park De La Villette competition to move from “invented” programs to a “real” program, and from “pure mathematics to applied mathematics” (Tschumi).

2-2-4 | Park De La Villette

This section will discuss Tschumi’s technique of fragmentation/synthesis in the Park De La Villette project and how his method is affected by the montage technique. Tschumi’s proposal for this project was chosen in an international competition for designing the largest park in Paris among several famous contestants.1 The program asked for envisioning and

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1 The office of Metropolitan Architecture/ OMA, Jean Nouvel, and Zaha Hadid. designing “an urban park for the 21st Century” (Souza, 2011, p.1), which can be the reason why we are not seeing any traces of the influence of historical precedents in Tschumi’s proposal (Souza, 2011, p.1). So instead of seeing the project as a picturesque park with nature
The “architectural apparatus of points, lines and surfaces” in park de la Villette are quite well known because of the vast publications since the completion of the project (AU, 1998; Tschumi, Derrida, Vidler, Boyarsky, 1986; Derrida, 1986). Tschumi himself and others have explained and criticized “the red follies of the point-grid and the cinematic promenade in the layer of lines” in details (Tschumi, Derrida, Vidler, Boyarsky, 1986). In this work, the points (folios) represent events, the lines aim to guide the movements, and the surfaces are showing spatial territories (Fig. 2-12; Fig.2-13).

(Fig.2-10). System of points, lines and surfaces in Park De la Villette Project. Retrieved from: https://commons.mtholyoke.edu/architecturalblog/category/uncategorized/

as its principal force, he envisioned it as a project that encourages movement and interaction and needs to be reconfigured and uncovered by visitors (Souza, 2011, p.1).
There is a clear relationship between the triple system of spatial reading in *Manhattan Transcripts* and the point/line/surface system of organization at Parc De La Villette: “The point, line, surface construction is the architectural projection for La Villette with these three autonomous layers transformed from the tri-partite space, movement, event reading of the Transcripts” (Dagenhart, 1989, p.84-90). Tschumi considers a system for organizing and designing the events (folios /points), spatial territories (the ground furnishing / surfaces) and movement (linear structures / lines) (Fig.2-13). Lines in Park De La Villette are linear structures above the ground, cutting the park into pieces and directing people in a certain way.
2-2-5 | Bernard Tschumi and Montage

There are several ways in which cinematic montage has influenced Parc De La Villette. First is that the architect is considering the triple of event-movement-space as his main concept and deals with each of these layers separately. This isolation and separation of layers helps him to design each of them in detail; For instance, he designs the movement through the park (“Cinematic Promenade”) in such detail which is never seen in a normal project (Tschumi, 2000, p.70-75). Tschumi’s sketches show how he has considered different features of these promenades such as morphology, their rhythm, their intersections with other elements, and even the pace of movement while designing the linear structure paths (Fig.2-14; Fig.2-15).


Second, montage has been used as a language of architectural presentation and is similar to what we see in the documents for designing fireworks (Fig. 2.16). These diagrams were for a firework exhibition in 1992 in Park de La Villette (Tschumi, 1987, p.25). They are completely obeying the form and organization of the tables filmmakers use for developing the visual narratives and film editing. (Fig. 2.17).

(Fig. 2.14). Firework design diagrams for Park De La Villette, Bernard Tschumi. Retrieved from: https://arch206eventspace.wordpress.com/.

2-2-6 | Tschumi and Temporal Design

“The temporality of the Transcripts inevitably suggests the analogy of film. Beyond a common twentieth-century sensibility, both share a frame-by-frame technique, the isolation of frozen bits of action. In both, spaces are not only composed, but also developed from shot to shot so that the final meaning of each shot depends on its context” (Tschumi, 1981, part.4).

In chapter one, I described temporal design as designing an architectural experience from the eyes of the spectator by considering as much detail about the experience as possible. I also argued that when discussing temporality in architecture, the analogy between
architecture and cinema becomes quite appropriate. Indeed, montage as a technique in cinema, which is the most responsible for creating rhythm, sense of time, and establishing spatial and temporal relationships, has always been an interesting topic for some architects. In this section, I will conclude how the method of montage helps Tschumi to bring temporal considerations into his architecture.

As explained earlier, Tschumi is inspired by montage in at least in two different ways, both associating his architecture with some aspects of temporal design.

- Based on montage language, he develops a form of architectural representation. This mode of representation lets him create a space composed and developed through a ‘frame-by-frame technique’. This technique helps the designer to isolate pieces of the experience and design that bit of action in details, which means from the perspective of the person who is experiencing it. Designing an architectural project in such detail requires the architect to consider temporal aspects of the experience along with the physical aspects, even unconsciously.

- Another way montage technique is exhibited in Tschumi’s work is somehow similar to what Le Corbusier does, but is still quite different. Le Corbusier is fragmenting the experience into sequences of perspectives and views from the eyes of the moving spectator, which eventually helps him to consider the temporal aspect better. In the same way, Tschumi is using montage, as a fragmentation process. He breaks a spatial experience into layers of events, movements, and spaces. It gave him the chance to have small pieces to work with and the ability to dig deeply into that experience so as to find himself in the space he was designing at the same time. Therefore, he had a chance of combining temporal considerations with spatial ones. He fragments the
space into three layers and designs each layer separately. None of these layers is self-contained, and should be interpreted “against the background of another” layer (Tschumi, 1981, chapter.1). As the final step, and in a process quite similar to montage, he reassembles the layers back on each other and creates a whole space.

**2-3 | Rem Koolhaas | Seattle Public Library**

**2-3-1 | Introduction**

This section investigates the traces of montage technique in Rem Koolhaas’ design process through analyzing the Seattle Public Library (2004). Examining Koolhaas’ design method in this project enables us to develop a new interpretation of his well-known concept of “programmatic indeterminacy” (Koolhaas, 2014, 9-13). This reading examines his approach toward addressing “programmatic indeterminacy” in the Seattle Public Library as a method in montaging the architectural program, which leads to “an unexpected way of inhabiting architecture” (Pollak, 2014, p.1), and eventually makes Koolhaas’ design approach an attractive subject for studying temporal design.
2-3-2 | Koolhaas and the Program

Starting with the "Delirious New York," and "Park De La Villette" projects, Koolhaas began to investigate the concept of flexibility and adaptability of a building through time (Baran, 2013, p.18-28). He introduces the idea of “programmatic indeterminacy”, which addresses the common condition where “the necessities and functions assigned to space alter so rapid that one cannot presume the next function that will be allocated to space” (Baran, 2013, p.18-28). Koolhaas’ tool for dealing with this indeterminacy is the program. Indeed, the Office of Metropolitan Architecture (OMA) has gained distinction for being program driven and always exploring the design solutions from this window (Pollak, 2014, p.1).

Pollak defines the program as the “client’s brief”, where the client describes the “types, sizes, and numbers of spaces and the budget for carrying out the project”. It also reflects the client’s “desires and aspirations for a future building” (Pollak, 2014, p.1). Aside from the concept of programmatic indeterminacy, there are two other related issues to Koolhaas regarding the topic of the program. First is the impression of reducing the design to the program in his work; and second is the role of authorship in designing programs. Most architects devalue the reduction of the architecture to the mere brief and consider the program as an opportunity, enabling them to be more active in the process of design. Luis Khan believes that architects should not take the program “literally”; the program should not be taken and translated “de facto into a building” (Pollak, 2014, p.1). Tschumi also asserts that the program should “take architects out of their passive way” (p.1). However, the project I am about to discuss has faced a lot of criticism and discussion for translating “literal brief” into the architectural form (Fig. 2-16) (p.1).
In the process of design and developing the program, the role of authorship and the architect’s preoccupations is undeniable. As Tschumi states, "The program is never neutral" (Pollak, 2014, p.1). Koolhaas’ preoccupation in facing the program originates in his previous career in scriptwriting. He always appeared to be sensitive to cinema and montage. He compares the program in architecture with writing screenplays and considers both from the same nature:
“In a script, you have to link various episodes together, you have to generate suspense, and you have to assemble things through editing. It is the same in architecture; architects also put together spatial episodes to make sequences”. (Spiegel, 2006, p.1)

Koolhaas believes that the role of the program in his architecture has stayed almost the same as the beginning of his career (Koolhaas, 2006, p.8). Even though Koolhaas constantly states that he has a straightforward view toward the program in most of his projects (Koolhaas, 2006, p.8), it was still a challenge to find the most appropriate project for this research. Koolhaas states he follows a “linear, logical process in commission projects,” while suggesting a more “irrational, insane and surprising” solution for competitions (Koolhaas, 2006, p.8). Seattle public library (2004) is a commissioned project chosen for examining the concept of montage in OMA’s encounter with the program. OMA has published a step-by-step design method for this project, which was an important factor in our decision.

2-3-3 | Koolhaas, Cinema, Script Writing

Koolhaas has a professional background in film and script writing and holds more connections with cinema compared to Tschumi and Le Corbusier. In an interview, Koolhaas counts several commonalities between architecture and cinema, such as “complexity, being expensive, and teamwork nature”. Moreover, in his own words, he states that “… filmmaking has some elements, such as narrative plot, montage, and jump cuts, and procedures that you could find an equivalent to in architecture very easily. Having been involved in movies in my early life, I think, really facilitated my sense of what architecture would be” (Hustwi, 2015, p.1).

Also, as a script writer at that time, he considers architecture a type of script writing: “In a script, you have to link various episodes together, you have to generate suspense, and you have to assemble things - through editing. It is the same in architecture. Architects also put
together spatial episodes to make sequences.” (Spiegel, 2006, p.1). He connects the program in architecture with writing screenplays and considers both from the same nature. He goes on to assert that “at an interesting moment my obsession with script writing almost randomly intersected the world of constructivism, and with that, I discovered an exceptionally interesting hybrid, where any aspect of daily life could be imagined and enacted through the architect’s imagination” (Koolhaas, 2006, p.8).

2-3-4 | Seattle Public Library

Seattle public library, finished in 2004, is the Central Library for “Seattle’s 28-branch library system, including 33,700 sqm of headquarter space, reading room, book spiral, mixing chamber, meeting platform, living room, staff floor, children’s collection, and auditorium, and 4,600 sqm of parking” (Arch Daily, 2009).

Koolhaas has emphasized the various similarities between architecture and cinema. However, as a design method study, we need to do a more in-depth investigation on these commonalities. In the project of Seattle Public Library, Koolhaas’ initial concern regarding the program was the fact that normally in public libraries functional and public spaces are merged to maximize flexibility and ended up constricting architectural attractions (Chin, 2005, 28-38).

Addressing this issue, Koolhaas argues for a more reasonable plan, which groups spaces into “spatial compartments” devoted to and prepared for specific functions (OMA/LMN, 1999, p.10). The “compartmentalized flexibility” aims to create an adaptable space without losing the “autonomy in space use” by allowing flexibility to happen only in separate compartments (p.10-12). In other words: “Flexibility can exist within each section, but not at the expense of any of the other compartments” (p.10-12) (Fig. 2-19).
Koolhaas combined similar programs and achieved nine different compartments: “Five stable and four unstable programmatic platforms” (Fig. 2-20) (OMA/LMN, 1999, p.22-24). In each of these nine compartments, flexibility happens independently from the others. He categorizes these nine compartments according to their function into two groups: “Stable platforms” and “unstable platforms”. “Stable platforms” includes spaces for books, meeting rooms, and parking” (OMA/LMN, 1999, p.22-24). According to Koolhaas, “Stable platform will not be extended in the future and includes solid storage space, office space, parking, and bookshelves” (p. 22-24). “Unstable platform” on the other hand, includes all other flexible activities such as work, interaction, and play” (p.22-24).
(Fig.2-18). Nine programmatic compartments. Black: stable spaces; Pink: unstable spaces.
Retrieved from: https://s-media-cache-ak0.pinimg.com/originals/58/09/3b/58093bb05dd01993def5de6d8f26b0cf.jpg.

As illustrated in (Fig. 2-21), the first step in encountering the program was analyzing and elaborating on it. After learning about all aspects of the program in detail, the next step for the architect is “program consolidation,” which is when similar programs are combined, to simplify the program’s appearance. Later, in the third phase, Koolhaas defines new relations between pieces of consolidated programs by “taking bits of the program parts and re-grouping” them in the form of compartments (OMA/LMN, 1999, p.22). For instance, the kids compartment, as a part of the stable platform, is shaped by regrouping pieces of the program such as book storage, support, reading room, and service space.
2-3-5 | Koolhaas and Montage

This section aims to argue for the existence of a relation between the montage technique and Koolhaas’ approach toward programmatic indeterminacy in Seattle Public Library. We previously discussed Rem Koolhaas’ practice in cinema and his opinions about the common application of the cinematic terms and techniques such as “narrative plot, montage, jump cuts,” in architecture (Hustwi, 2015, p.1). Furthermore, we learned about a practical aspect of this relation, as Koolhaas states being involved in cinema before his architecture profession has facilitated the process of architectural design for him drastically (Hustwi, 2015, p.1).

Koolhaas emphasizes the role of editing and assembling spatial episodes in creating exciting architectural experiences (Spiegel, 2006, p.1). Indeed, Koolhaas shares the same notion with
Tschumi and Le Corbusier, which is through the assemblage of contradicting parts that interesting experiences happens in architecture. We argue in Seattle public library his decision toward addressing programmatic Indeterminacy, i.e., Compartmentalized flexibility, or controlled flexibility platforms, is a ‘montage of the program’. In stable platforms, we are facing a dense combination of mundane programs such as book storage, offices, parking, etc. In this context, the overlaying of programs, is a condensing process in its nature, which leads to accommodating more books and materials through efficient/dense arrangement of rooms and shelves. On the other hand, in unstable platforms, with a different nature of programs, the process of assembling activities happens in a different way. This process of design and its spatial consequences reassembles montage technique in cinema. In unstable platform, we are dealing with work, interaction, and play. He overlaps activities in a way to maximize their “dynamic coexistence; layers programs on top of each other to permit “mutual interference of events” (Özkan, 2008, p.5). Through montaging the program, Koolhaas creates a complex of overlapping programs, which eventually leads to a dynamic interaction in pieces of the program as well as the occurrence of unexpected events.

2-3-6 | Koolhaas and Temporal Design

In chapter one, I defined temporal design as designing an architectural experience from the eyes of the spectator and taking into consideration as many details about the experience as possible. Koolhaas is designing a rich experience, not through identification with the spectator like what Le Corbusier does, but rather, he puts his effort in creating a basis and infrastructure, which facilitate accidental and unpredicted events. Therefore, we can consider his work as a different example of temporal design, created though redefining the program.
In this chapter we looked at some projects by the architects, who care about the experience of architecture the most, in order to learn about different practices of temporal design. We discovered that all of their works are connected to cinema and have the traces of montage techniques. We reviewed Le Corbusier’s, Tschumi’s, and Koolhaas’ approach toward montage in this study; they seek their design solution through a process of fragmentation and reassembling. Le Corbusier fragmented the movement and designed the dynamic combination of perspectives and views from the eyes of the spectator. Tschumi had two approaches: one borrowing a language of montage to better designing the architecture experience in detail, and the second, fragmenting the experience into layers of movement-space-event. He designed them separately, and eventually reassembled them (montage of the experience).Koolhaas had the same fragmentation and reassembling (montage) approach but with a different medium. He overlapped activities in a way to maximize their “dynamic coexistence” and programed layers on top of each other to permit “mutual interference of events” (Özkan, 2008, p.12).

Apart from their projects, all these architects have expressed their interest in the relationship between architecture and cinema. However, with the exception of Tschumi, they did not directly discuss any application of this technique in their projects or design methods. In the case of Tschumi, we could trace the influence of montage in his design, drawings, and diagrams, but he, too, did not provide us with a systematic method. The goal of this thesis is to extract a design method for considering temporal design in architecture by learning from the application of montage techniques in the works of these architects.

Figure 2-20 summarizes the second chapter.
**Conclusion** Project Analysis: Architecture | Montage | Temporal Design

<table>
<thead>
<tr>
<th>Technique</th>
<th>Their Interpretation</th>
<th>Montage</th>
<th>Temporal Design</th>
</tr>
</thead>
<tbody>
<tr>
<td>Le Corbusier</td>
<td>Architectural Promenade: Designs the real experience of space in detail, from the viewpoint of the moving spectator.</td>
<td>Fragments the movement pattern into perspectives and views</td>
<td>Designing the unfolding of scenes and views as one moves through the spaces.</td>
</tr>
</tbody>
</table>
| Tschumi    | Invented Language: a frame-by-frame technique, the isolation of frozen bits of action (Tschumi, 1994) | 1- Language of Montage  
2- Fragmenting the spatial experience into layers of events, movements, and spaces. | Isolating pieces of the experience and designing that bit of action in detail.     |
| Koolhaas   | Programmatic Indeterminacy: Overlapping the program layers permits mutual interference of events / their dynamic coexistence. | Montage of the program: Fragments the program, assembles the pieces again. | Creating a basis and an Infrastructure, which facilitates accidental and unpredicted events. |

Source: Author.

**(Fig. 2-20)**. Conclusion of the second chapter | project analysis: architecture, montage and temporal design. Source: author.
3 | Temporal Design Plugin

3-1 | Introduction: A plug-in proposal

In the first chapter, I discussed different readings of the concept of time as it relates to architecture. I defined temporal design and discussed the problem that an architect who is designing with tools such as plan, elevation, and section will not be able to easily take temporal considerations into account because the medium distracts him/her from the real sense of space, which includes the temporal aspect of architecture. I stated that considering these temporal aspects is possible through planning the experience of space from the viewpoint of the moving spectator.

In chapter two, I developed a better understanding of the concept of temporal design through the analysis of actual projects by Le Corbusier, Tschumi, and Koolhaas. At the same time, I have noted a link between montage and architecture in all of those projects, which created the basis for developing a method for temporal design. In this chapter, I propose our design method for Temporal Design in Architecture, which aims to help architects to consider temporal aspects along with the physical aspects during the designing phase of architectural projects.

This thesis does not seek to prescribe architects a whole new design method since the design method is a personal preference for each architect and is formulated, shaped, and developed over years of practical experience until it eventually becomes more and more personalized. It is not realistic to expect designers to change their mindset suddenly and
adopt a new set of habits or techniques of thinking and designing. Therefore, I suggest a proposal for considering temporal design, which can mesh with an already existing design process. The project aims to enhance current design processes to the level where architects would better consider temporal aspects as well as physical aspects and focus their attention on these. In other words, this temporal design proposal will not be presented in the form of a new design method, but rather as a plug-in process which can be added to an already existing host design process. Additionally, the temporal design plug-in focuses only on better incorporating the temporal aspect considerations into the architecture. Clearly, decisions about site, aesthetic, form, relation with precedents, technology, sustainability, energy management, among others will not be addressed by this model.

In order to clarify the concept of the plug-in in a design process, I briefly look at these two terms. The Oxford English Dictionary defines a plug-in as “a module or software able to be added to a system to give extra features or functions” (Dictionary, 2004). The term is often used in the field of computing and refers to a software or hardware add-on module which simply plugs in to the existing system. For example, internet browsers let users install various plugins to enhance the features of the default installation. On the other hand, the design process in architecture refers to the succession of all steps that designers take to shape a design solution to a specific design problem, such as studying the environmental/cultural/social context; developing a concept, refining the proposed design solution, and designing details. Therefore, in this thesis a plug-in in design process refers to a series of functions which can be added to the cycle of an architectural design process in order to create certain characteristic in the final result. The reason for choosing the word plugin is because the performance of the proposed method is similar to a plugin, which means first of all, its
application is optional and depends on the choice and decision of the designer, and second, it can be added to any type of design process. ²

In order to better clarify the concept of the plug-in in a design process, I will also briefly look at the issue of the design process in architecture. According to Cross, the English design researcher and professor of design studies at The Open University (UK), there have been numerous attempts to suggest a design process model (Cross, 2008, p.28). In his book Engineering Design Methods: Strategies for Product Design (2008), he suggests a descriptive system of the design process. He states that descriptive systems are recognized with “identifying the solution early in the process” (p.28). Descriptive models of the design process are heuristic and normally because of their solution oriented nature, the evaluation phase leads to fundamental refinements in the first design solution (p.26). Architectural design as well as other conventional engineering design activities is the typical example of descriptive models of design process. This basic solution then will be analyzed, evaluated, and refined during the process. Diagram (Fig.3-1) illustrates this model. The model is also addressing the iterative nature of the design process, which refers to the necessity of the existence of "feedback loops" (p.29). Figure 10 shows a more detailed model with the same concept (p.30). Cross states that the evaluation stage does not directly lead to the communication stage, but creates an “iterative feedback loop” involving generation stage. The generation-evaluation loop helps to define a new and more satisfactory design concept (cross, 2008, p.30). In this loop the generated solution (generation stage) will be tested to see whether all components fit together and to predict the probable errors (evaluation). Therefore, a new refined design solution will be produced and will be tested again.

² Each designer prefers to study the design problem and approach the design solution in his/her unique way. No matter what the design process looks like, TD Plugin can be added to it to enhance it.
As shown in figure 3-1, this model is based on four type of activities: exploration, generation, evaluation, and communication. The first stage of the design process is exploration. According to Cross (2008), designers are often faced with a "poorly defined problem" while they are expected to develop a "well-defined solution" (p.9). According to Cross, design problems are often recognized as "ill-defined problems". He describes the characteristics of a poorly defined problem as follows: "There is no definitive formulation of the problem, any problem formulation may embody inconsistencies, formulations of the problem are solution-dependent, proposing solutions is a means of understanding the problem, there is no definitive solution to the problem" (Cross, 2008, p.15). Therefore, in this phase, the designer attempts to explore and map various areas of the problem. "It is appropriate to think of the designer as an explorer, searching for the undiscovered treasure of a satisfactory solution concept" (Cross, 2008, p.9). The second stage is the generation of the design proposal which some people consider as the "mysterious and creative" part of design, and some others as a "logical process of problem solving" (Cross, 2008, p.9). In both cases, in the generation phase, the main act of design will happen and that leads to the proposing of something new which does not exist before. The generation stage in itself is the subject of so many design research studies.

According to Cross (2008), most design projects lie between the two extremes in the generation stage of design: random search and prefabricated strategies (p.186). He states that even though the overall design process is convergent, it a combination of both convergent and divergent periods (p.187). The third stage is evaluation of the design solution. At the evaluation phase, the design proposal will be evaluated against "goals, constraints and criteria of the design brief" (Cross, 2008, p. 28). According to Cross (2008), "the whole point of having the process of design separated from the process of making is that proposal for new artifacts can be checked before they are put into production" (p.6). He states that this process of "refinement" is an essential part of designing (p.7).
Knowing that design happens in an “iterative” process (Cross, 2008, p.30), I suggest adding the temporal design plug-in, as an additional step, to this cycle, meaning that in each cycle of design, the results will be filtered and modified through this plug-in as well. Therefore, the TD plug-in can be utilized no matter whether one has started creating a new project or is in the process of modifying an already developed project (Fig. 3-2). In Cross’ model, the plugin
can be located in the loop of “generation” and “evaluation” where the exploration phase is over and the main act of designing is happening (fig.3-4) (Cross, 2008, p.29). The nature of this plugin is a checklist to check whether every aspect of the experience is considered in the design solution. Therefore, each time that a designer begin to rethink and check the design solution, and enters into the loop of generation-evaluation, the plugin will appear as a filter which refines the design solution according to its own standards.

**Left. (Fig. 3-3). The TD Plug-in can be added to the design process cycle.** Source: author. **Right. (Fig.3-4) Locating the Plug-in in the iterative model of design process suggested by Cross.**


**3-2 | Temporal Design Vocabulary**

Before describing the plug-in, I define some of the terms used in my proposal. As stated before, the basis of my proposal, as well as the related terms, has been developed by
studying the application of montage technique in the work of Le Corbusier, Tschumi, and Koolhaas.

- **Temporal design:** I define temporal design in architecture as ‘designing an architectural experience from the eyes of the reader of the space and with considering as many details about the experience as possible. It is not necessary to state that these are not the same as physical and constructional details, but they have an experiential quality such as movement, narrative, events, perspectives, and rhythm.

- **Plug-In:** The Oxford English Dictionary defines a plug-in as “a module or software able to be added to a system to give extra features or functions” (Dictionary, 2004). In this thesis, plug-in refers to a series of attention focusing activities which can be added to the cycle of architectural design in order to create certain characteristic in the final result.

- **Reader:** Bruno was the first person arguing that space can be ‘read’, a word also used and admired by Eisenstein and Le Corbusier (Samuel, 2010). According to Samuel, a reader is referred to as a person who enters into the space and experiences the architecture (Samuel, 2010). Even though a reading of the space is a multisensory task, this study mostly focuses on the ‘vision’ and the ‘movement’ of the spectator through space.
• **Movement:** Gibson defines movement as the “motion of the body that causes the change in the field of vision” and locomotion as “movement from one place to another”, which can be either in a “habitual manner or an exploratory manner” (Bechtel, 1967). “Habitual manner” of locomotion happens in familiar territory such as in the home and office, while the locomotion in an “exploratory manner” happens in unfamiliar spaces, such as public spaces, museums, and galleries. However, in this thesis by ‘movement’, I am referring at the same time ‘to the motion of the body which leads to the change of view’, as well as to ‘the change of the location’.

• **Program:** Program can be defined as “client’s brief” or “desires and aspirations for spaces” (Pollak, 2014), and also to “human experiential and social realities” (Dagenhart, 1989).

• **Sequence:** “A part of a film dealing with one particular event or topic” Dictionary, 2004). In this thesis, a sequence is a “series of spatial episodes” (see next paragraph) that shape a “distinct unit”; these episodes are connected by a single travel from the beginning of the first episode to the end of the last (Spiegel, 2006).

• **Spatial Episode:** The Oxford Dictionary defines episode as “an event or a group of events occurring as part of a larger sequence; an incident or period considered in isolation” (Dictionary, 2004). In this proposal, each spatial episode is a travel from destination A to destination B. For instance, we consider a travel from room A to room B as a one single episode. Rem Koolhaas notes that in a similar way to what filmmakers do, architects “put together spatial episodes to make sequences.” (Spiegel, 2006).
• **Event:** In Manhattan Transcripts, Bernard Tschumi describes an event as “an incident and an occurrence….which has an independent existence of its own. Rarely is it purely the consequences of its surroundings” (Tschumi & Young, 1994). Events cannot be designed or forced to happen, but we can prepare the condition in which they occur.

• **Object:** According to Dagenhart, “objects refer to both forms and spaces in architecture” (Dagenhart, 1989).

• **Rhythm:** In this thesis, rhythm refers to the systematic arrangement of the architectural elements in a way that can convey different tempos such as the sense of speed or acceleration when one passes over them. It is a measure of the flow of the architecture formed by the pattern of repetition and mass/void arrangement in different scales.

• **Destination:** I mark the heart of each program/function in the space as a single destination. For instance, the kitchen and living room are both separate destinations in a residential project.

• **Turning points:** While traveling through a sequence (ex: from room A to room B), there are places where extraordinary things have been designed to happen, such as an immediate, spectacular view, or perspective, or conflict with another path. I call these spots on the path of the sequence ‘turning points’.

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**Temporal Design Plugin (TD Plug-In)**
3-3-1 | TD plug-in function

The TD plug-in relies on three major elements: Sequence, plugin, and perspective. The diagram (Fig.3-3) summarize their relationships and the steps as follows:

(Fig. 3-5). TD plug-in process. Source: author.

3-3-1.2 | Sequence

I borrowed the definition of an architectural sequence from Koolhaas as a “series of spatial episodes” that shape a “distinct unit”. These episodes are connected by a single travel from the beginning of the first episode to the end of the last one (Spiegel, 2006, March). For instance, in different projects, a travel from Room A to room B, or from the kitchen to dining room, or from the entrance to the gallery can be considered as a sequence (Fig.3-8). The input of the TD plug-in are known as ‘sequences’. Therefore, the first step in designing with TD plug-in is to distinguish sequences in the project as per the following steps.
1- Defining destinations: Each destination represents a function/program/space (Ex: kitchen, public area, room B.) (Fig.3-6).

2- Defining sequences or our desired travel paths between destinations (Ex: Room ‘A’ – Room ‘B’ sequence, entrance-backyard sequence, etc.) (Fig.3-7) (Fig. 3-8).

We may have several sequences in each project. Traveling through each of these sequences is associated with different architectural characteristics. These architectural features, which TD plug-in aims to consider, can be either physical, such as length of the path, and movement pattern; or temporal, such as, conflicts with other sequences(paths), overlapping of the program, events, as well as movement qualities like tempo and rhythm and step by step change of views.

Finally, I import the sequences one by one into the TD plug-in to design their physical and mostly temporal characteristics.

![Diagrams](image)

**Left. (Fig. 3-6).** Destination A, B, C, D, and E. Each destination represent a specific program/function. Source: author.

**Right. (Fig. 3-7).** Defining sequences, i.e. travel paths between destinations. Source: author.
(Fig. 3-8). Distinguished sequences ready to be imported to the TD plug-in. Source: author.

3-3-1-3 | The Temporal Design Plugin (TD plug-in)

After distinguishing the sequences, they will be entered in the TD plug-in table (Fig. 3.10). While traveling through a sequence (ex: from room A to room B), I note that there are places where special things have been designed to happen, such as a sudden spectacular view or perspectives, or conflict with another path. I call these spots located in the path of a sequence ‘turning points’. Turning points divide the sequence into smaller modules called episodes. After importing a sequence into the plug-in (Fig. 3-10), we break it down to its composing episodes (Fig. 3-9).

The structure of the table suggests its performance as a checklist. It basically provides a list of spatial features which need to be considered in each episode. There are three categories: Actions, Movements, and Objects, each of which includes sub-categories.

In order to explain the content of the checklist and its development process, I refer to the definition of temporal design in chapter 1 and the results of the project analysis in chapter 2. In the first chapter, I defined temporal design as designing an architectural experience from the eyes of the spectator in space and considering as many details about the experience as
possible. So ‘movement’, as an important facet of temporal design, and considering its various aspects, would build a major part of the table. Furthermore, I obtain two useful conclusions for developing the table from the project analysis chapter. First, two approaches toward creating temporal design in architecture was found in those projects, and second, I supported the argument that various types of montage technique have aided all those architects in doing temporal design. In section ‘2-4 | Summary’, I described how the architects had either a direct or indirect approach in doing temporal design (fig.2-20). In the direct way, the plug-in seems to function as a checklist helping the designer to consciously incorporate temporal aspects in the design, while in the indirect way, the designer is not following a step by step process; instead, he or she is designing an infrastructure (by overlapping the programs and activities) which automatically leads to the occurrence of unexpected events. Therefore, the TD plugin table will reflect these two approaches in doing temporal design (The complete discussion on the direct and indirect approach can be found at section 3-4-2).

As illustrated in figure 3-10, aside from the perspective row, the table includes two other major sections: ‘Movement’ and ‘Action’, each representing the direct or indirect approach toward temporal design. The movement section is where the direct approach toward temporal design happens. This section is called ‘movement’ because it is where the designer decides about the details of the experience as the spectator walks through the sequence. Temporal design is based on the concept of movement, and this section helps the designer to consider different aspects of this movement, such as the pattern of the movement, destinations and turning points, rhythm, and conflicts between paths. The ‘action’ section represents the indirect approach toward temporal design. It is divided into two rows, program and event. They remind the designer that by overlapping the programs, the occurrence of
the events will be facilitated and, consequently, an indirect approach toward doing temporal design will happen.

The definition of each term in the table has been stated at the beginning of this chapter (3-2: Temporal Design Vocabulary). An important issue regarding the TD plugin table is that in order to communicate the decision for each of these categories, one needs to have a language. We have a language to describe furnishing, or showing our decisions about the landscape, or the materials of the project; however, we do not have a language for communicating temporal features, such as rhythm, event, program overlapping, and change of views. I argue that each architect’s approach toward these temporal considerations can be personal since this is a design process and is not supposed to be communicated to others. In other words, architects invent their own symbols and graphics through which they think and design. Figure 3-10 illustrates an example of a graphical language developed for thinking and making decision about temporal aspects in TD plug-in.

The end point of using TD Plug-in is to produce perspectives and forms which have temporal design imbedded in them. In other words, after planning each row for a sequence (such as movement pattern or rhythm, these rows will be combined to create an actual architectural appearance in the form of the succession of perspectives. In addition, there is a cycle within the plug-in, which requires the designer to go back and forth from each row to the perspective (Fig. 3-11).
(Fig. 3-9). The relation between a sequence and its composing episodes. Source: author.
(Fig. 3-10). The empty TD Plug-in table. Source: author.
3-3-1-4 | Perspective

The product and outcome of TD plug-in is the unfolding succession of perspectives and views as one progresses through the sequence (Fig. 3-5). This output will be directly incorporated into the project. Therefore, after each cycle of design (Fig. 3-3), (Fig. 3-4), designers introduce a new set of successive perspectives to their design and modify their project according to these images with temporal considerations embedded in them.

After accommodating the project with these perspectives, the architect continues to the cycle of design and feedback loops by updating the sequences and importing the same or new inputs in the TD plug-in (Fig. 3-5).

(Fig. 3-11). The back and forth process between designing each row and designing the perspectives. Source: author.
(Fig. 3-12). The suggested Symbols and graphical language for using TD plug-in. Source: author.
3-3-1-5 | The TD plug-in diagram

(Fig. 3-13). An example of the filled TD plug-in diagram. Source: author.
3-4 | Concluding discussions

This chapter suggested a modification, called Temporal Design Plug-in, into architecture design processes. The thesis claims that this modification will help the architect to literally focus his or her attention on details of the architectural experience sequences, and therefore design with having time in mind. In this section, I discuss some of the features of the method.

3-4-1 | Checklist and foregrounding

A quick view to the temporal design table suggests its performance as a checklist. Through studying projects by Le Corbusier, Tschumi, and Koolhaas, we learned about different ways in which one can approach temporal design. However, the process of design like many other complex multistep processes such as “surgery preparation, airplane takeoffs, and building buildings” (Gawande, 2010, ch.1) can be facilitated if a list of tasks is provided. Gawande, an American Surgeon, writer, and public health researcher, in his book The Checklist Manifesto(2010), argues that checklists aid us to be more efficient with complex jobs, through focusing us on the task usually overlooked in emergency situations (Gawande, 2010, ch.1). He considers checklists as a solution to increase accuracy. In his book he mentions different examples of failures of doctors several times. He believes there is too much for them to do. He states that the problem in medicine is to “make sure we apply the knowledge we have consistently and correctly” (Gawande, 2010, p.10).

This idea of a checklist works perfectly with the other concept of TD Plugin, which is foregrounding. Foregrounding means placing a set of activities in the front of one’s attention and moving other things to the back. Therefore, when dealing with a complex task like design, a checklist helps the architect to think about all the factors and manage all the variables, one at a time, and independent from the others. The checklist makes a single spatial feature
stand out at a time from its surroundings. This foregrounding is an opportunity for the designer to study, analyze, and design different layers of the space separately and independent from its context. Therefore, the temporal design table is a checklist of what architects tend to forget while designing spatial episodes, and its mechanism is foregrounding.

3-4-2 | The plugin’s direct and indirect approach toward temporal design

The process of designing temporal aspects of architecture through TD plug-in happens in either a direct or indirect way. In the direct way, the plug-in seems to function as a checklist helping the designer to consciously incorporate temporal aspects in the design, while in the indirect way, the designer is not following a step by step process.

In a direct way, the designer will be in the role of the spectator and “the human eye” experiencing the smallest details of the experience. The method of fragmenting the architecture into first sequences and second episodes, as well as fragmenting each episode itself into layers of movement pattern, rhythm, change of views, for example, is the direct approach in designing the temporal aspects of the experience.

However, these temporal aspects can also be taken into consideration in an indirect way, meaning that in order to design the experience, the designer would not try to put him/herself into the shoes of the reader of the space. Instead, he/she would try to construct the setting and scenario required for the occurrence of unexpected events and interactions. In the TD plug-in, the indirect approach happens through the conflicts between sequences and overlapping of the programs.
3-5 | EVALUATION: A NEW ART GALLERY

3-5-1 | Introduction

As an evaluation of the TD Plugin, I held a pilot workshop to apply this method in developing an architectural solution to a given design problem. The best way to evaluate and enhance a design method is to ask designers to use it. Therefore, a workshop, where actual designers gather and use the method and discuss its weaknesses and strengths, will be an important part of developing and modifying this design method. The goal of this workshop was to examine first, the extent that our design plan meets its initial objectives, and second, to predict the future enhancement in the method.

The workshop explores the hypothesis that designers would be able to design more details of an architectural experience if they break down the architectural experience into its sequences and episodes; the use of the TD Plugin checklist would help the designer to focus on normally neglected spatial features. The participants were asked to use the TD- Plug-in to design a project through drawing and presentation on A1 sheets. Therefore, the workshop helped me to learn whether the TD plugin technique helped participants to design a better and more detailed experience (temporal design), and to get their feedback to enhance the format of the TD plugin table.

3-5-2 | The evaluation criteria

Before doing the workshop, we needed to define a measure to assess the results. I studied the proposals and evaluated the application of the method in them. Further, I used a self-report method to record participants’ experience better. After finishing each proposal, the
Participants were asked to explain their project. We will lead the questions and discussion to find answers to these three topics:

1- Assessing the success of the four core principles of the project in outlining a temporal design: (Sequence, episodes, table content, and the perspective bar).

2- Asking about the convenience of using the table, and participants’ suggestions for enhancing it.

2- Inquiring about their general satisfaction with the final results while using this method compared to not using it (the quality of design, the fulfilment of their ideas, encouraging their imagination, speed, etc.)

3-5-3 | The workshop

I asked three students (A, B, and C) to participate in the seminar. They were architectural graduate students who had their Bachelor degree in architecture, and each has worked professionally in firms for more than a year. They were required to have good hand drawing skills and be used to the experience of drawing a whole project in a limited timeframe.

The workshop was set up in a private spot on the fourth floor studio at Stuckeman Family Building. There was a screen available for projecting the workshop instructions from a computer (appendix B and C). In the beginning, I explained the method on a screen to the participants and provided them with a hard copy of the method instruction for further reference (Appendix B). Then we had a discussion and question section to clarify any misunderstanding and to ensure everyone had similar viewpoints. Next, the design brief was handed to the participants, and the submission format was discussed (Appendix C). The participants were told that they have the whole day to work on their proposal including the breaks. Therefore they had more than 12 hours to spend on the workshop. They had been
provided with A1 sheets, tracing papers, color pencils, markers, etc. The participants had access to their laptop, studio computers, and internet. They were asked to submit their proposal on A1 sheets, so they could either design it all on the computer and print it, or draw their proposal directly on the sheets. After my introduction lecture on the design method and workshop description, all students preferred to proceed with hand drawing and found manual presentation to be a faster option. The workshop introduction script can be found in Appendix A. The raw proposals can be found in Appendix D. After each participant was done, in one-by-one discussion sections, I recorded their feedback and suggestions.

(Fig. 3-13). Workshop setting. Source: author.

3-5-4 | The results

It is a pilot workshop with three participants. Since all the participants have used the method, the results from this workshop cannot be compared to any other data. Therefore, even though I try to review and analyze the proposals from my own point of view, the major part of the total analysis would be through self-reported data. However, for future studies, a better method of analysis would be to have two groups of participants, one using the method and the other not. Furthermore, the results would be more accurate if there had been a higher number of participants, but for now, we analyze the data from the pilot-workshop only. For this workshop,
the results are annotated drawings on A1 sheets and audio scripts. The analysis would be mostly speculative.

3-5-4-1 | Analysis of the proposals

3-5-4-1-1 | proposal A

Participant A began the work by studying the program and investigating the spatial relationships through diagrams (fig. 3-13). Later, he expanded his analysis into defining sequences (fig.3-13) and chose two of them to be designed:

Reception → orientation Gallery → Gallery A,B and C → Exit.
Reception → Café, Shop → Gallery A,B and C.

(Fig. 3-13). Defining sequences. Proposal A. Source: author’s workshop.

Participant A enters the sequences into the TD plugin table. Like other participants, he connected multiple tables together to prepare a sufficient space for designing each sequence (fig. 3-130). The participants were allowed to modify and accommodate the TD
plugin table according to their preferences and their own design method requirements.

(Fig. 3-130). Participant A connects tables together. Source: author.

Diagram 3-15 illustrates different parts of proposal A’s table. Participant A considered two major rows, the first row was for defining the movement pattern through the sequence, as well as turning points, and destinations. He allocated the second row, the spatial features row, to make decision about architectural details. He preferred to have a longer list of spatial features in this section. One can see in his table the several spatial considerations such as colors, materials, lighting, ceiling height, water fountains, skylights, indoor and outdoor connections/ transitions, forms (sharp edges, curved surfaces), and abrupt changes in the atmosphere(Fig.3-14). In the third row, he described his decision through written text. It seems that written text also appears to be a productive tool to describe architectural decision compared to graphical language. The architectural features mentioned and considered in this proposal are a small part of a bigger list including all architectural elements and concepts. Even though there have been several attempts in listing architectural concepts and elements, such as Concept Sourcebook by Edward White (1975) and Elements of Architecture: From Form to Place by Pierre von Meiss (1990), still there is no such list for all the concepts and elements in architecture. It is certain that such a huge checklist will help architect to focus his/ her attention on a single aspect of design through foregrounding,
therefore to keep track of many more things at one time. However, in this thesis, I am limiting the checklist content to only the temporal considerations which I learned through project analysis in the previous chapter, such as the act of breaking the architectural experience into smaller parts several times, putting movement in the space as the main organizer of the design activities, and considering the aspects of the experience which are often neglected such as movement pattern, program conflicts, events, rhythm of movement, and change of views as one proceeds in the spatial sequence.

(Fig. 3-15). The diagram of the modified TD plugin table. Proposal A. Source: author.

After entering the sequences to the table, participant A broke them into their episodes and began to make decision about the smallest details of these episodes (fig. 3-16). A comparison between the perspective row and the table’s diagrams shows that lots of major spatial decisions illustrated through perspectives have been made under the influence of the TD Plugin table. An example of such spatial decisions which probably may have not been emphasized if the method had been different, is designing the transition from one space to the other one. The table lets the designer understand and imagine the space in the form of successive perspectives. Having a step-by-step of the experience in front helps the designer to easily imagine and draw the adjacent and related perspectives/ views/ episodes, and design more details about that experience through diagrams and texts. One example of the
details of the experience which specifically are bolded in this proposal is studying and designing the combination of static and dynamic spaces, i.e. the spaces for movement and the spaces for staying. Therefore, seeing the architecture as a combination of successive perspectives has made the designer think about the scale of the experience and the connection of these spaces to each other. In proposal A, the transition from one space to the other, whether it is an abrupt or slow change, has been designed and well-illustrated through the perspectives. Figure 3-16 shows pieces of the perspectives where the change of episodes happens. Again, by seeing all the episodes and pieces of the experience in a continuous line, the designer could choose various and complicated options for transiting from one episode to the other one. (Fig. 3-16).

(Fig. 3-16). The variety of the designed transition from each episode to the other one. The TD Plugin table helped the designer to think about the transition from one space to the other on more deeply. A, B and C are separate spaces also highlighted as red. Proposal A. Source: author’s workshop.
(Fig. 3-14). Temporal Design Plugin table. Proposal A. Source: author’s workshop.
As explained earlier, the method instruction suggests that perspectives should be designed from the eyes of the viewer. This means that the designer is defining major viewpoints from the eyes of the spectator who moves in the course of the sequence, and then he designs those views in detail. However, participant A preferred to grasp the general atmosphere of the space through drawing distorted, wide angle perspectives (fig.3-17). Even though this approach helps him to illustrate more details of the space compared to when a narrow view point is designed, it highlights space without users and puts less emphasis on the viewer’s experience.

(Fig. 3-17). The succession of perspectives in a sequence. Proposal A. Source: author’s workshop.

The general design process of proposal A according to Cross is illustrated in figure 3-170. This diagram shows the four stages of descriptive design according to Cross: exploration, generation, evaluation, and communication. In all the proposals, the explorations stage is limited to understanding the site and program. The main part of the process is the generation of the concept and entering it into the TD plugin. Because of the time limitation, none of the proposals completed one round of the generation__ plugin__
evaluation. They simply generated a concept, defined sequences, and entered them into the TD plugin. In the TD plugin table, they completed the concept and made it more detailed by using the checklist. Ideally, the design solution which comes out of the plugin should be evaluated according to the brief criteria and then get modified. Then the
modified design solution will enter the generation stage again where it can be seen in the general context of the project. After refinement, new sequences will be extracted and entered into the TD plugin table, and so the loop continues as much as needed.

(Fig. 3-170). Proposal A (and B and C) design process according to Cross model. Source: author.

The participant expressed that the influence of the table did more than just push the designer to fragment the experience into episodes and design that episode with a checklist. As a participant who did the complete design loop, which meant that they entered the perspectives into the table and had time to reflect on his sequences, he stated that designing the café and orientation gallery in detail led him to understand the similarities of these two spaces. Therefore, after thinking it over, he changed the spatial organization and put these two programs adjacent to each other, thereby having them share an outdoor space. Therefore, the table clarifies the essential features and requirements of each space, which consequently influences the designer’s major decisions such as defining spatial organization.
Participant B begins with defining a typical museum spatial configuration and its sequences. The interesting point about this proposal is that it starts right with the sequences and not with defining destinations (fig. 3-18). He defines the major sequence as: City → Reception → Oriental Gallery → Gallery A,B and C → Shop → Café → Reception → City.

Compared to proposal A, in this proposal the participant puts greater effort into the analyzing sequences before entering them into the TD Plugin table. After defining sequences, he went through a process to define destinations. In order to do so, he analyzed the sequences and their nature to see what spaces and programs are needed (fig. 3-19). He changed his spatial configuration based on the discovered destinations and carefully distinguished and named different episodes (fig. 3-20).

(Fig. 3-18). The succession of perspectives in a sequence. Proposal A. Source author’s Workshop
Left. (Fig. 3-19). Spatial concepts regarding designing an architectural sequence.
Proposal B. Source: author.

Right. (Fig. 3-20). Top: New spatial configurations based on analysis of sequences; and bottom: defining episodes in sequence I. Proposal B. Source: author.

As mentioned before, the participants were free to customize the table with their needs as long as they were following the method’s major instructions. Participant B preferred to draw his own table on the A1 sheet (fig. 3-21, page 91). Figure 3-22 shows an abstract illustration of what his table includes. As seen in his own table (fig. 3-21), he preferred to combine all the rows of the table together and describe the spatial qualities of each episode through texts. Despite proposal A where the designer mostly focused on
considering the maximum of spatial features, participant B emphasizes the program overlapping and conflicts. As seen in figure 3-21, he has bolded the overlapping space/program between city and reception, reception and gallery, gallery and café, café and reception, and finally reception and city again. Finally, he draws a succession of perspectives from important views in each episode (fig.3-21).

Right. (Fig. 3-21). The modified TD Plugin table. Proposal B. Source: author’s workshop.
The succession of perspectives reveals the designer's intention in putting contradicting views next to each other in a sequence. According to him: "... I normally tend to look at architecture through single-isolated images. I draw sections and perspectives and often do not allocate sufficient time to think about their visual relationship as they are experienced by the user. But when I look at architectural design as a sequence of images, then it will be all about the relation between scenes and the way they complete or contradict each other" (participant B). The proposal shows that most of the designer's effort were put in defining and programming the sequences and, consequently, in comparison to other proposals, this participant has not progressed much in designing the architectural plan or form.
Similar to the previous proposals, participant C begins with dealing with the sequences. He defines two major sequences and aims to design them with the help of TD plugin. However, as expected, only one round of the first sequence was accomplished: Reception → Oriental Gallery → Gallery A,B, and C → café (fig.3-23).

(Fig. 3-23). Defining sequences. Proposal C. Source: author’s workshop.

He enters this sequence into TD Plugin table and modifies the table according to his own method of design. Similar to participant A, he believed in a better organized architectural features checklist. In his proposal he has emphasized the role of the spectator’s movement through the sequence. As a result of our discussions, I understood that he tends to consider the ‘movement’ of the spectator as the main organizer of his table. Like participant A, he preferred a longer checklist of spatial features, but in his proposal suggested a more developed one (fig.3-25). Figure 3-24 illustrates a diagram of his modified table.
(Fig. 3-24). The diagram of the modified TD plugin table. Proposal C. Source: author.

(Fig. 3-25). Modified TD Plugin table. Proposal C. Source: author's workshop
According to him, some spatial features seem to work better with either dynamic or static spaces. He states, "...You have included features in the table which are mostly related to dynamic spaces like corridors or paths....For instance, consider the word 'rhythm' which does not have any significance in a room where everyone is supposed to sit and experience the architecture through a single viewpoint and not walking..." (participant C). Therefore, in the first row of his table, he drew the diagram of the sequence, including turning points and destinations. Then he allocated a section to ‘experience qualities’ and divided it into other sections named ‘static’ and ‘dynamic’. In the ‘dynamic’ section of the ‘experience quality’, he made decision about rhythm, change of views, ground material, and repetition of architectural elements. He explained that in the ‘static’ section of the ‘experience qualities’ that he likes to make decision about architectural features such as height of the ceiling, size of the spaces, artificial/natural light, and the general atmosphere of the space. He defines the programs and their overlaps and tries to reflect them into his perspective as well (fig. 3-25).

He has removed the event row and added his event related considerations to the program row. As a result, where programs overlap, events are likely to happen. The emphasis on movement is also understood from the perspectives. It was observed that Participant A preferred wide angle perspectives to illustrate bigger portions of the space. While these perspectives are easier to draw because of their big scale, they are distant from what the user really experiences. Contrary to that, this proposal illustrates perspectives from the eyes of the moving spectator (fig. 3-26).
(Fig. 3-26). Perspectives from the view point of the moving spectator in space. Proposal C. Source: author’s workshop.

3-5-4-2 Discussion

3-5-4-2-1 | On success of the primary approach and four principles

In general, the participants all reported on the success of the four principles of TD design method in better designing the experience:

- Sequence-based design (in TD plugin) encouraged temporal design.

The participants believed that seeing architecture as sequences of images instead of separate isolated images is closer to a real spatial experience. They found this approach helped them to imagine the actual experience in the space and fulfill their ideas about it better.
• Dividing sequences into episodes assisted them in designing details of the experience. According to our participants, fragmenting the sequences into spatial episodes brings to their attention numerous features, which designers can consider. They stated while using their regular design method, they had hardly thought about these details.

• Having a spatial features checklist helps to design the experience in greater detail.

As explained earlier, the TD Plugin functions as a checklist by placing a short single spatial experience in front of designer’s attention and moving its context and other episodes to the back. The table includes several spatial features which require the designer to make a decision about them in each episode. Even though all the participants criticized the format of the current table, they still said they preferred to have a checklist format since it would help them to increase their focus on the experience. They also discussed the fact that each project might need its unique personalized table.

• Designing perspectives parallel to filling the table was helpful in multiple ways.

The participants expressed the combination of the checklist and perspective drawing together expanded their design language and encouraged their imagination. They further felt that by putting successive perspectives next to each other helped them to effortlessly design surprising changes and opposing spatial characteristics in two adjacent views/perspectives.
3-5-4-2-2 | On the TD plug-in table

It was observed that participants are not completely comfortable in using the table. Two of the participants either modified the table with new topics or left some rows empty, and one preferred to draw a new one on a blank paper slightly different from the original table. They criticized the TD table (discussed in the previous section) in two ways: first the size and the format, second the content (checklist). They preferred a wider table, with more space for the perspective. It became apparent that the ‘movement pattern’ row could not reflect the real trajectory pattern since some sequences have a curved and folded shape. Thus, it was suggested that the movement pattern row could be removed. Also, they preferred the ‘destination’ row and ‘turning points’ row to be combined. The ‘rhythm’ row and ‘conflict’ row was two of the most challenging parts of the table, but almost all of them included them in their design. Finally, the group came to the conclusion that the checklist must be much longer. They believed that the table had already concentrated on non-conventional, temporal based features such as rhythm, conflict, program overlap, and so they preferred to have a longer checklist of spatial details including physical aspects (concepts and elements) as well as these temporal aspects.

3-5-4-2-3 | Participants’ satisfaction with the result and the process

The members agreed that the method had increased their sensitivity toward designing the real experience through layers of fragmentation. They believed the final result would have been different if they had not used this method. They felt that by concentrating on designing the primary sequences in much more detail than they normally would, they had
created a better architectural design. However, from another point of view, one may notice the drastic change in their design speed. Participants were drawing diagrams for defining sequences and their conflicts, and completing and comparing the parts of the table for hours. Even though at least three significant sequences were recognized, at their best, they could only design one and a half sequences. As mentioned before, this was a small pilot workshop, but to actually get useful information on the plugin, one needs to test it with two groups: one using it and the other not.

3-5 | Contributions

In this thesis, I have made four principle contributions. This thesis suggests a practical view toward the topic of time and architecture. The term temporal design represents a small part of this body of study. I provided a framework based on the work of three architects who have the traces of temporal design in their projects. Through analyzing these projects, I argued that all of their design methodologies share the process of fragmentation and assemblage. This process, which is similar to montage technique in the cinema, has aided them in doing temporal design.

I have designed a plugin to make a more systematic approach for architects who want to focus on designing with temporal aspects. I held a pilot workshop which is the preliminary demonstration of the role of montage technique in breaking down the architectural experience into its sequences and episodes, and the role of the checklist in focusing the attention of the designer on normally neglected spatial features in those episodes through a foregrounding process.

Temporal Design Plug in helps the architect to consider temporal aspects of architecture along with its physical aspects. The thesis defines temporal design as designing the
experience in detail. Therefore, the Plugin aims to help the designer to better design the actual architectural experience in detail. Approaching the real experience means approaching the concept of time as well as space, because in reality these two are always tied to each other. In other words, designing the real experience leads the architect not only to design the physical dimension, but to begin to realize the temporal aspect of architecture and to indirectly design this dimension as well.
Dear participants, thank you for joining this workshop. I am going to explain a design method to you and ask you to design and present a project using this method. My lecture will take 20 minutes. I will leave the instructions on the screen and give you the hardcopy of the method and project description. Feel free to ask me questions during my lecture, afterward, and while designing. You have the whole day to work on your proposal, which would be more than 12 hours. Throughout this time, you are free to go anywhere you want inside the building and use any type of resources such as the internet, library, etc. Please do not leave the building before you are done unless it is for lunch. You can talk to each other or to me anytime. You have unlimited breaks. You are required to try your best to follow the design method instruction I am about to explain and present your work on A1 sheets. You can use your laptop or studio computers during any stage of the design or presentation. You also have the option of drawing with pencils and markers. A1 sheets, pencils, markers and a light refreshment will be provided. Once you are done, I will interview you about your proposal. Your name and identity will be kept anonymous. I will record your voice for transcription later. I will not include your name or photos of your face.
Appendix B | Design method instruction

Art Gallery in Niavaran

Vision: Temporal design:

By temporal design I mean designing an architectural experience from the eyes of the spectator in the space and with considering as many details about the experience as possible. No need to say that these details are not the same as physical and constructional details, rather they are the type of details enhancing the quality of the experience. Those include but are not limited to the movement, narrative, events, change of perspectives, rhythm.

Method description

Each design process happens in an itinerary cycle (Cross, 2006). I add the temporal design plug-in, as an additional step to this cycle, meaning that in each cycle of design the results will be filtered and modified through this plug-in as well. (Fig. 3-2)

![Diagram](image)

*(Fig. 3-2)*. TD plug-in process

The TD plug-in relies on three major elements: Sequence, plugin, and perspective. The diagram bellow (Fig.3-3) summarize their relationships and the steps as following:
Steps

1- Defining Sequences

Left. (Fig. 3-4). Destination A, B, C, D, and E. Each destination represent a specific program/function.

Right. (Fig. 3-5). Defining sequences, i.e. travel paths between destinations.
(Fig. 3-6). Distinguished sequences ready to be imported to the TD plug-in.

2- Entering the sequences into the Plug-in table.

There you divide each sequence into spatial episodes:

(Fig. 3-8). The relation between a sequence and its composing episodes.
Fig. 3-9. The TD Plugin
(Fig. 3-11). An example of the graphics used in the TD plug-in diagram
Appendix C  |  Design Brief: Niavaran Art Gallery

The project is an Art gallery in Niavaran st. Tehran, Iran. The design brief and site information are as follows:

<table>
<thead>
<tr>
<th>General Public</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ABBR.</td>
<td>SPACE</td>
<td>SIZE</td>
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<tr>
<td>RL</td>
<td>Reception/Lobby</td>
<td>1000</td>
</tr>
<tr>
<td>OG</td>
<td>Orientation Gallery</td>
<td>1500</td>
</tr>
<tr>
<td>SH</td>
<td>Arts Centre Shop</td>
<td>1000</td>
</tr>
<tr>
<td>C</td>
<td>Café/Catering</td>
<td>500</td>
</tr>
</tbody>
</table>

<table>
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<th>Exhibition</th>
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<tbody>
<tr>
<td>A</td>
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</tr>
<tr>
<td>B</td>
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<tr>
<td>C</td>
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<table>
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</tr>
<tr>
<td>O</td>
<td>Preparation Office</td>
<td>100</td>
</tr>
<tr>
<td>W</td>
<td>Exhibition Workshop</td>
<td>300</td>
</tr>
<tr>
<td>S</td>
<td>Storage</td>
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Site Information

The site is located in front of the Niavaran Civic Center in Tehran, Iran. One of the important features of the site is the old trees. Two rows of old trees are located perpendicular to each other in the middle of the site. Another row of trees is located parallel to the northern border. There is an 8% slope from north to south of the site. The site is next to a bookshop on the east, and adjacent to a residential area on the west and south west.
Analyzed Site
Final suggestions

- Distinguish the key sequences in the project.
- Enter the sequence into the table and divide it into episodes at turning points.
- Try at least two or three sequences. Translate each of them into a succession of perspectives and incorporate it into your design. Do this cycle as much as needed.
- Make sure you go back and forth from each section of the table to the perspective.
- Make sure you are going back and forth from the table to your sheet (plan, section, elevation).
- Overlap the programs to encourage more interesting turning points and surprising events and conflicts.
- Include all the documents needed to understand your project such as elevations, plans, sections, perspectives, etc.
- Attach your table to your sheet.
Proposal B
Proposal C
Bibliography


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