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Projection Surface and Architectural Space

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Projection Surface and Architectural Space

Amos Bar-Eli

Abstract

The transmitting, manipulating, and projecting of digital images is central in current life and culture. Images are represented on a multitude of devices and projected in a variety of ways. Projection technologies has by no means exhausted itself, on the contrary, all indications imply that we will experience larger, better quality, and more varied manifestations in common use. As such, 'projection surfaces', can be, and are, understood as architectural material. 'Projection surface' have the unique property that what is seen on it is not its materiality, but rather other forms and objects. 'Projections' are changing and dynamic, they portray movements and transformation, actually, they can portray almost anything.'Projection surfaces' are emerging as substantial to the understanding and making of architectural space, intermingling with other materials and forms. The realistic spatial conditions are combined with the projected visual possibilities of the imagined and speculated. This creates an extensive effect of fragmentation, superimposition, partial views, and discontinuity of space and consciousness. In addition to blurring the distinction between interior and exterior, a new possibility is added: the elsewhere and the other-time, together with the here and the now. This condition is interpreted not merely as a visual by-product, but rather as a reflection of current culture. The technology itself is not the subject of the paper but rather its transformative effect on architectural space. The paper analyzes and conceptualizes the implications and possibilities of contemporary architectural space as it becomes laden with projection surfaces.

Keywords: Architectural Space, Architectural Theory, Design, Digital Imagery, Projection Surface.

Introduction

Transmitting, manipulating, and projecting of digital images is central in current life and culture. Images are re-presented on multitude devices, and projected in varied ways. Projection technologies has by no means exhausted itself, on the contrary, all indications imply that we will experience larger, better quality, and more diverse manifestations in common use. 'Projection surface' have the unique property that what is seen on it is not its materiality but rather other forms and objects. 'Projections' are changing and dynamic, they portray movements and transformation, actually, they can portray almost anything. 'Projection surfaces' are varied in size, easy to use, can be used outside, regardless the elements, can be used independently of external light source (or darkened space), and have high resolution. The terms 'projections' or 'projection surface' are referring generally to current and emerging variants of image projection. Technology itself is not the subject of the paper but rather its influence on architectural space.

'Projection surfaces' are evolving as substantial to the understanding and making of architectural space, intermingling with other materials and forms. The realistic spatial conditions are combined with the projected visual possibilities of the imagined and speculated. This creates an extensive effect of fragmentation, superimposition, partial views, and discontinuity of space and consciousness. In addition to blurring the distinction between interior and exterior, a new possibility is added: the elsewhere and the other-time, together with the here and the now. This condition is interpreted not merely as a visual by-product, but rather as a reflection of current culture. The paper analyzes and conceptualizes implications and possibilities of contemporary architectural space as it becomes laden with 'projection surfaces'.

This phenomenon of combination between real space and imagined or represented space has long historical and conceptual development, it is by no means a new one, neither it is connected only to technological advances. The paper traces some historical and architectural examples of its evolution and maturation. It seeks to trace those ideas as creative and spatial concepts, and to position the 'projected surface' not only as a technological evolution, but as a continuation of a long and complex concept. One issue, claimed in the paper, is the evolution of the 'projected surface' into a building material, with extensive influence on architectural space and the way we experience it. 'Projected surface' is not an ordinary material, it has unique attributes. It duplicates and re-present space.

The presence of 'projection surfaces' within architectural space creates overload of visual content which we are submerged in. This condition is analyzed in order to review its possibilities and consequences. To evaluate the emergence of new architectural space, to attempt a path for further discourse, and seeking to ask some relevant questions. The importance of this is discussed on the background of the fast-growing technological advances, its visual implications, and the emergence of future developments. The main concern facing this paper is twofold. First, to evaluate the current spatial condition in which the 'projected surface' is a major determinate factor. Secondly, asking questions such as: how should

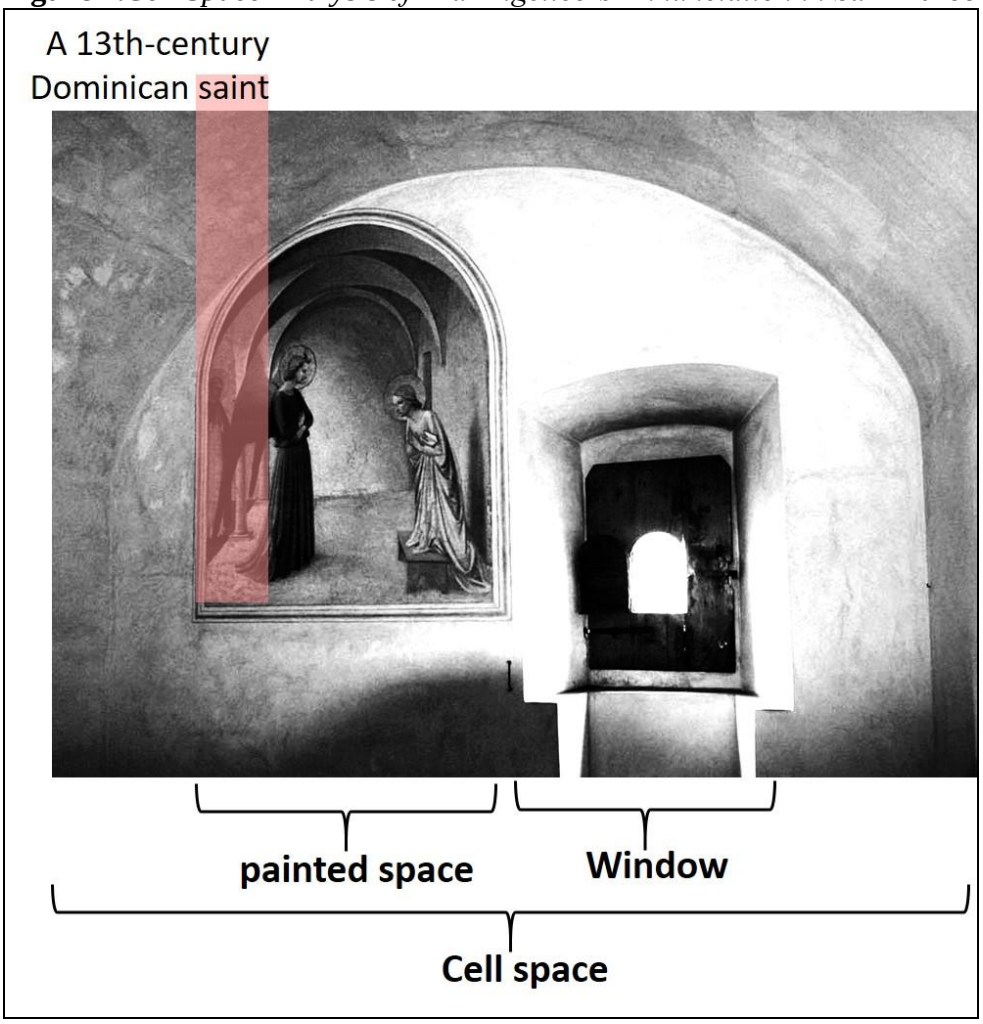
we think about architectural space now? How should we incorporate this new condition into spatial thinking? Into architectural education?And not the least, do we ask the important questions?

Space within a Space - the Real and the Represented

The understanding that the concrete, realistic space which we occupy can be enhanced by adding an image of another space within it is ancient as inhabiting space itself. It can be said that the portraying of an imagined or remembered space within real space, premature the actual production of architectural space. This can be seen in cave paintings, which portray the space of the hunt, a space within a space, the imagined superimposed with the real. This is done because we have memory, imagination, creative impulse, and desire to represent. Human beings can create imagined spaces, images, and have a capacity to appreciate them, we have the will to store, present, and represent them. The complex relationship between the spaces and their representation has evolved and continues to evolve ever since such images were marked on cave wells. 'Projected surfaces', although technologically advanced, emulate this crude, ancient concept. Before evaluating the uniqueness and the outstanding conditions 'projection surfaces' suggest it is of relevance to reiterate the conceptual background of the relationship between real space and represented/imagined space.

At around 1450 Italian painter Fra Angelico completed a series of religious themed paintings at the convent of San-Marco, Florence. In one of the monk's cells, Angelico paints one of his favorite themes, the 'annunciation'. This fresco is an example of the complex relationship between interior-exterior/real space/portrayed space. The fresco is located in an austere monk's cell next to a window opening to the space of the exterior. The painting's frame is in a shape of a window, doubling the real window on the same wall and emphasizing its role as an opening to another space. The space portrayed in the painting is readily recognized as the space of the convent, one floor below. The portrayed space is occupied by the scene of the 'annunciation' with Maria and the angel. They are adjoined by the painted presence of a 13th century Dominican saint, which by no means could have been present at the time of the annunciation. This painting is one of the earliest examples in art in which a realistic representation of space units the different figures in it (Barnaby, 2002). The painting then serves as an echo, resonating the relationship between the real and the imagined. A complex relationship of real space-time: cell/window/frame, is corresponding with the painted space: convent/angel and Maria/saint (see Figure 1).

Figure 1.*Cell Space Analysis of Fra Angelico's Annunciation in San-Marco*



Source: Analysis by Author.

A further example which concentrates the complexity and relationship of represented space within architectural space can be seen in the painting 'Las Meninas' (1656) by Spanish master painter Diego Velázquez. This extraordinary painting depicts the princess Infanta Margaret Theresa, child of the royal couple, standing in a room surrounded by her servants among them Velázquez himself staring at us from the painting as if we are photographing him. The walls are covered with pictures which are sort of 'windows' to other spaces and times. A young servant boy/dwarf, on the far right, mockingly rests his leg on a sited dog while his other leg is just outside the picture frame coming from within an opening to another space, probably a window open to the outside, as is hinted by the light coming from this direction. At the back wall a figure, identified as a chamberlain in the service of the queen, standing at a semi-open doorway, one foot on a short flight of stairs as if on the verge of descending/entering or ascending/ exiting. The mirror in the center of the painting depicts the royal couple their image is reflected as if they are viewing the scene from the outside, occupying the space which the current viewer (us) are viewing the painting. The royal couple in the painting are looking/acknowledging them/us directly

as they gaze directly at them/us. These two figures in the center of the painting, the chamberlain and the royal couple, occupy a dualistic spatial position. The chamberlain attracts our attention toward the space which lays far behind the room, while the mirror with the royal couple suggests the space in the other direction, that which is in front of the picture frame. On the left side of the painting stands Velázquez himself holding his tools of trade, pallet and brushes. Closing the frame on the left side we see the back side of a canvas suggesting further the spatial intricacy of this painting (Alpers, 1983).

Many ideas, both in art and architecture, relating to this architectural spatial complexity continued to develop throughout history. The emergence of large panels of transparent glass as common building material has brought about new concepts and possibilities into the relationship of interior-exterior. One of the most prominent architects defining this prospect is the renowned German architect Ludwig Mies van der Roha. In the twenties and thirties of the twentieth century Mies introduced architectural visions which suggested a new direction to the problem of division between interior and exterior (Gullström, 2010). Glass with its transparent quality was envisioned as capable of eliminating the architectural skin as separating interior from exterior space. Transparency was conceived as offering total clarity, purity, and perpetual continuity. Mies avant-garde ideas aspired to break away from centuries old dilemmas of architecture: finality, closure, completeness, and spatial separation. Mies attempted to find a way to create pure architecture in which space flows uninterrupted between these two distinct zones (Evans, 1997). In that sense,Mies built and unbuilt ideas were probably envisioned as sort of redemption for humanity, a promise of freedom from architecture's limitations. But this prophecy of freedom and clear honesty, as will become clear soon, has transcended into something entirely different (see Figure 2).

Figure 2.*Mies Barcelona Pavilion, 1929, Photographed 2015*

Another historical example, sheds light on the position of the body within this complex spatial condition. In 1938, the photographer Edmund Engelman took a series of pictures documenting the home and office of Sigmund Freud at Berggasse 19, Vienna, where he worked and lived for the majority of his career. Taken at the moment that the Jewish Dr. Freud is forced to leave his home and flea to London where he will spend the remaining year of his life. One of those documentary type images shows a view of Freud′s desk next to a window. The desk is burdened by some of Freud′s intriguing collection of statues and artifacts. On the center of the window, on the knob, hangs a small mirror, which was frequently used by Freud. Submerged in artifacts of symbolic and nostalgic value Freud′s view to the outside is centrally superimposed by a view toward the inside, where the self is. This image is telling in the way we root our identity, socially and psychology, into the environment with visual symbols and signs, and superimposed with transparent and reflective spatial relationship.

Evolution of Projection Surface - From Painting to Building Material

Painting can create or re-create an illusion of space. The understanding, early at the 15th century, of the mathematical rules that govern perspective allowed painters to depict space in realistic fashion. Many developments have taken place since but the fundamental premise of painting has remained. Painting limitations, as an architectonic surface remain as well, it is time consuming to produce, requires technical expertise, hard to maintain, and very complex to create a large surface. The discovery of photography and cinema, and especially their reproductive qualities, has brought about a true revolution in the way culture evaluates and produces, art and visual imagery (Benjamin, 1931). Yet photography was expansive, required technical expertise, and had many limitations regarding size and quality. TV and video were furtherer developments. Sequenced scenes of high complexity could be produced, transmitted, and manipulated with high quality and relative ease. Yet the ‘projected surface’ remained limited. Film was confined to the dark space of the cinema hall while the TV was narrowed to a box-like object located within the domestic sphere, most commonly, in the living room. It is only the fast-growing technological advances in computation, digital imagery, and the Internet that ‘projection surfaces’ have gained their true accord which can be accredited as a new building surface material; a phenomenon that is far from reaching its pinnacle.

In the past decade, technology of the ‘projection surface’ dramatically transformed it from object to material. Today ‘projections’ emerge as having complex and varied surface possibilities. ‘Projections’ gained many attributes toward an understanding of them as architectural material. They can occupy large surfaces, be merged with other materials, sometimes they are transparent or semi-transparent, and they can divide space. Although many types exist they are characterized by producing their own light source, and of being thin. Having their own light source makes them kind of self-regulating and independent from environmental conditions. Being thin imply that they can be applied as a surface, almost like a coat of paint, and

can take on almost any form, shape, or size. 'Projection surfaces' can be positioned in exterior conditions, they do not require the protective shelter of architecture, they can and are becoming the cover material itself. Recent advances allow 'projection surface' to occupy substantial area of buildings elevation. Alongside this ability, the quality of the images, the rapidness of their transformation, ease of manipulating, and their relevance for contemporary life has drastically evolved.

American media researcher Anne Friedberg terms the 'projection surface' as a "virtual window". This window has grown far behind Alberti's notion about painting being a window into reality (Friedberg, 2006). The "virtual window's" frame or shape is almost of no importance or limitation. The virtual window\projection screen experimented and developed not only its contents, but also in the way it duplicates and doubles it. Such techniques as split screens, multi-screens, multi-media, split images, split sequences, multi-images, reached a point in which Friedberg claims that:

> *"we now see the world in spatially and temporally fractured frames, through "virtual windows" that rely more on the multiple and simultaneous than on the singular and sequential."*
> *(Friedberg, 2006, p.243)*

I contend that 'projection surfaces' emerged from a status of object, to that of a building material. As an essential component in the layered composition of the thinking of architecture, of any scale or use. 'Projection surfaces' are not limited anymore only to dwelling, signs, or ads of different kinds. They can be used anywhere for any purpose, for multi-purpose, and in conjunction with other contents and mediums. They can be merged freely with other building materials and components. 'Projected surfaces' are no longer separated from the space and function of the architecture which they are part of. As is elaborated by Italian architecture researcher Paola Gregory:

> *"Architecture becomes a surface of communication, sensitive, reactive and interactive: a screen on which plays the changing of actual or virtual reality, picked up and filtered by new trans-apparent screens. Obviously, this does not refer to the revolution of "electronic-glass", nor to the simple superimposition of a media skin over the covering of a building. Instead, it refers to "mediatizing" the meaning of architecture, transferring the fluidity and immateriality of the electronic media from the technological to the epistemological plane."*
> *(Gregory, 2003, p.80)*

It is worthwhile to sum up the unique attributes of projections surfaces as architectural material in a list form:

- Self-light source - they do not depend upon external light conditions.
- They are very thin - they are not perceived as objects.
- Common use - affordable, accessible, and easy to maintain.
- Flexible in design - they offer multitude of shapes and size.

- Flexible in content - image quality and unlimited options of content.
- Withstanding - can be exposed to exterior conditions (temperature, daylight, rain etc.)
- Interactive - responsive to touch, gestures, and sensory interaction.
- Augmented/virtual/Free floating 3D - a feasible possibility.

Digital imagery production, even of very high quality, is readily available to produce by almost any common type of smart-phone or home computer. Technical production, which required expensive equipment and complex technical skills until a few years ago, is available today at the fingertips of any computer user with basic skills. The ease of producing, storing, transmitting and sharing, has changed and advanced tremendously in a period of the last decade. It is more likely that culture is adopting and transforming together with the rapidness of technological advances. The two last attributes, mentioned in the list above, are not of common use. Yet the technology and conceptual need already exist. They are mentioned here as a hint toward the possibilities which will emerge, so all indications point out, in the near future.

Spatial Components and their Relationship

Architectural space is experienced visually in three ways. As regular space, reflected space, and projected space. Regular space is composed of material, can be occupied by the body, and is regulated by laws of physics and the flow of time. Reflected space is the space seen upon reflective materials. It mirrors regular space and duplicates it. It ranges from full reflection, such as in a mirror to semi-reflection of sorts on transparent and semi-reflective materials most commonly glass. Projected space is the space portrayed in or on ‘projection surfaces’ and generated by digital imagery. Conceptually it does not differ from paintings. In the paper, I refer to ‘projected surfaces’ as they evolved from the developments of digital imagery onward. As such, they differ in their ease of production, high quality, type, size, and number of surfaces which are common in architectural space. It is also an attribute of large screen surface, which can seemingly absorb the viewer and extend even behind the viewer′s peripheral cone of vision. The quality of imagery depicted is such that it duplicates completely and perfectly regular space, besides being non-haptic, and not habitable. In other words, ′projected space′is experienced only visually.

The mixture, visual effects, and possibilities of transparency and reflection were considered to be one of the most unique representations of modern culture, with special emphasis of the intense and fast growing urban culture. As such they became common artistic practice since the early decades of the twentieth century, specifically in avant-garde movements such as Cubism, Futurism, Situationists, Dada, and others (Vidler, 1993). In photography, it was widely experimented, via such techniques as double exposure, long exposure, and cut & paste manipulations. The editing procedure in film and video, with its cuts, fades, back and forth motion, slow and fast motion, which is at the heart of the medium, are essentially processes of fragmentation

and reassembling. Although the images may sometimes look chaotic or accidental, their creators took great care to use simultaneously specific conflicting conditions. The conditions, which are 'mixed' are ones that are seemingly impossible to experience under 'normal' viewing conditions. They are binary, conflicting, spatially separated, and/or time discontinues. Among them we can count superimpositions such as:

- The far with the near
- The detail with the whole
- Different viewpoints on the same object
- Different perspective points
- The past with the present
- The real and the imagined - the perceived with the conceived
- Detaching the signified from its signifier

Complex methodologies were used to manipulate images and symbols. Employing various representation tools, essentially placement of unrelated or seemingly unrelated objects/fragments juxtaposed and/or superimposed in various relationship to each other. Accordingly, methodologies of such processes equally deviated from straight forward recording of reality. The preferred procedures were mixing, such as collage, and giving legitimacy or even preference for the accidental, automatic, nonsense, illogical, unconscious, etc. Example for such critical reinterpretation can be found in British architecture researcher YeoriaManolopoulou discussion of 'chance' in architecture, which she defines as:

> *"What chance really means is finding a different order from the one that was expected. Chance is essentially the relationship between an expected kind of order and an actual kind of order".*
> *(Manolopoulou, 2013, p.155)*

Following the observation that 'projection surfaces' have gained the property of architectural material, it becomes the subject of this paper to analyze and evaluate the relationship created from the combination of the three types of spaces: regular, reflected, and projected. In other words, how is regular space effected and redefined by the insertion of layered components of reflected space and projected space. Projected images can change between scales, spaces, locations, movements, viewpoints, and time. The spatial conditions, which take place in the superimposition of regular space and projection space, create a spatial indeterminacy. The visual aspects of this are defined by the, sometimes conflicting, mixture of:

- Viewpoints and Perspectives
- Distances and scales
- Movement and speed
- Meaning and intent
- Realistic and imagined

- Present and past

First designs that experimented with the sensory indeterminacy of projections were conducted by the Eames couple during the late Fifties of the twentieth century. They designed movies and large multi-media exhibitions. Their model event for such exhibitions was the ‘circus’, an event which offers a multiplicity of simultaneous experiences that cannot be taken in entirely by the viewer, nor from a single point in space nor in a single moment in time. They used many screens of extremely large size, projecting multitude of image and film sequences choreographed to synchronize at certain points in time and to differ in others. This escalated the possibilities of fragmentation to a whole new level. It allows representation of reality to be in constant state of fragmentation and reassembly, as if in a perpetual process, seemingly with no end or purpose. This representation mode was analyzed by architecture researcher Beatriz Colomina explaining the Eams’s aim as:

> *“…to produce sensory overload... The audience drifts through a multimedia space that exceeds their capacity to absorb it”.*
> *(Colomina, 2001, p.19)*

American architecture researcher Sylvia Lavin discusses the emerging relationship between the projected images and the architectural surface. Her discussion emphasis is the interaction on the surface of the architecture. Her notion of the interaction between solid form and materiality of architecture, and the ‘soft’, transformable nature of the projected media is correlated to the act of kissing; the hard and the soft, the feminine with the masculine, the artistic with the architectural. It is a kiss-like relationship in which each entity is different but their gentle touch not only changes them but creates a new intermingling not possible by each alone, she states:

> *“… their effect on architecture is to cause architectural facades to disobey notions of frontality, coherence, and transparency. Projected images break the planes of a building into parts that never come together again to compose an envelope.”*
> *(Lavin, 2011, p.47)*

The power of projection to utilize the whole surface of architecture, almost regardless of its size or location, is by now available, even common. Projecting images, and moving images on the entire architecture transforms its meaning. The superimposition between the materiality of architecture and the content of the images transforms both the architecture and the projection. The projection receives a unique context, and the architecture gains new visibility. An example for this can be seen in installation work by artist Doug Aitken: ‘Lighthouse’. It is a site-specific earthwork located in Upstate New York, it wraps a whole exterior of a house with moving images of the surrounding landscape. The viewer sees both architecture and images simultaneously. They both lose their integrity and become loaded with more than one meaning.

American architecture firm Diller, Scofidio + Renfero created thought provoking projects that question the relationship between digital media and architecture. Their 1996 'Jumpcuts' is a project made of Twelve screens positioned on the glass facade of a movie theatre. The screens are fed by live cameras pointed to escalators in the interior lobby. Movements of escalators and people are projected and reconfigured dynamically across the facade, interrupted occasionally by movie trailers. Viewed from the outside, multiple superimposition take place, the real with the projected interior, a fragmented interplay of content, scale, and perspective. "Travelogues", from 2001, is a 33 screens installation in an airport corridor. Each screen displays a one second film, corresponding to the time passengers walk pass each screen. The location in an airport, a non-place space, the content, and length of the movies, the state of limbo of the viewers, all enhance the indeterminacy of the space. Their "Facsimle", from 2004, consists of a large projection monitor suspend on the glass facade of an office building. The monitor glides slowly across the transparent facade. It is fed by two sources. One is a live scan of the interior and the second are pre-recorded images that correspond to fictive office or hotel interior. In this way, a constant interaction takes place between the real, the projected, the pre-recorded, together with the constant movement of the screen.

Critical Mass of Fragmentation and Chaos

Architecture is about the ordering of things, objects, and issues in space. Creating harmony, ordering the unintended and chaotic into comprehensive manageable spatial condition. Orienting oneself in space, maintaining spatial objective, discerning obstacles from possible paths, asserting spatial availability and condition is in the core of human movement and appreciation of space. Balancing and harmonizing materials, forms, and content in regular space is architecture's long tradition and core activity. Preferences of balancing and harmonizing has changed along history and among cultures as they evolved and shifted in fashion, technology and meaning. Yet, the establishing of order out of chaos has remained architecture's main aim.

We are accustomed to viewing images, movies, TV, and other projected types of media. Watching a film in which complex montage conditions take place on the screen has become common place experience. We are not alarmed when a character in a movie passes through a door to emerge in a location in another space or time. We are neither surprised nor shocked from a constant change of scale, speed, movement or total disregard to the laws of physics. We are aware of this constant disorientation, we are accustomed to it, we have learned to expect it, we are most likely entertained more than anything else. The complexity of the montage has already been established as the possible range of projected space possibilities early in the previous century as film industry became more and more popular and sophisticated. The 'Odessa steps' scene made by Russian film director Sergei Eisenstein in his 1925 film "Battleship Potemkin" has long became a hall mark of spatial montage, including a mixture of close-ups, camera movement, crowd

movements, single characters movements, and panoramic shots. Its rhythmic mixture of sequences is a masterpiece choreography of synchronized chaos.

Today space components, as mentioned above (regular, reflected, and projected), are produced together. Do they maintain order in any way? Can they do that? The conflicting and fragmentary conditions that emerge from integration, or superimposition of the three types of spatial conditions are of constant unpredictability. We are submerged in a visual conflicting overload. Signs, texts, perspectives, images, moving images, scales, architectural forms and materials, all superimpose, intermingle, compete, exist, appear and disappear constantly within our cone of vision. We cannot look away, all directions are loaded with changing, shifting, mass of imagery. Some appear by our choice, some are of our preference or serve our interests, yet most are injected into our attention, placed on our path, or meet us in unpredictable manner.

We consume the fragmented, discontinuous imagery in incomplete fashion, in partial bulks, we constantly create new understandings, ignore issues, make unpredictable chance connections which most probably no one had in mind or intended (Manolopoulou, 2013). Imagine being in a room full of people all talking at the same time, speaking in different languages, requiring your attention, ignoring your presence, simultaneously music and various sounds emerge from various sources, some are obvious and visible some not. The sounds appear, escalate, and oscillate unpredictably, echoes and vibrations of sorts rise and fall continue and discontinue unexpectedly, seemingly with no obvious purpose. This total acoustic, chaotic conditions is a metaphor for the visual spatial chaos we are experiencing on daily basis (see Figure 3).

Figure 3.*The Body Submerged (Unedited Image)*

A dazzling mixture of fragmented, superimposed, juxtaposed, twisted, arbitrary imagery, in which the real or the haptic is neither central nor determinative, its position is rather arbitrary and constantly interchangeable. In this condition time, space, and meaning are eliminated and blurred in unpredictable ways. It occurs in such a way that the only probable feature is that of chance occurrences with no hierarchy or order. It has no perspective shortening but rather a visual depth, swamp like thickness, in which the body is submerged, floating in and out of focus, constantly repositioned within this depth without coherent direction, aim, order, or consequences. The direction of advancement is just an option, any direction is right, every opportunity is justified, planned and\or accidental. The determinate flow of time is a possibility of one among others. It is a visual condition that has reached a critical mass of visual overload.

The Position of the Viewer

The position of the viewer and the way he/she is led or progresses within the architectural space is of major concern for the architectural profession. Classical architecture emphasized order and proportion with preference for visibility, harmonious relationship, and a static ideal position. Further essential values emphasized: hierarchy, movement along valued positions and vectors, transitory spaces, and issues of control and dominance.

The Modern movement, with its obsession with space, has developed the idea of promenade movement, which offered split possibility between movement and sight. It also suggested the dual possibility of purposeful functional movement alongside the opportunity to wander aimlessly. The ordered and efficient movement was understood as worthy of modern living in a logical, scientific, and technological society. While the opposite, wandering progression of unpredictable consequences, was perceived as a positive outcome of the urban lifestyle and a sign of its complexity and diversity. This seemingly dichotomous attitude can be seen for example in La Corbusier's "machine for living" set against the spiritual configuration of chapel in Ronchamp, or the confrontation between the rigid arrangement of villa Savoye's pillars suggesting industrial functionalism as set against the leisurely stroll of its interior ramp, which is all but functional.

Postmodern world emphasized the different possibilities of movement, the reemergence of the past and historical as valued. The suggested psychological movement and social transitory conditions as not less important than the functional or the logical (Evans, 1997). Poetic aspects of humanity have somewhat lost its flare as the possibility for intimacy and seclusion within complex urban condition has presented less importance or influence upon society. Ideas such as Foucault's 'Heterotopia' or Marc Augé's'Non-place' explored issues of disillusion of scientific ability to overcome humanities problems, and the dis-concern between architecture and emphatic human values.

The evolving interaction between 'projection surface' and architectural space suggests that the viewer is not only a costumer, nor a bystander, which became impossible. This condition, of being submerged within a

complex interaction, implies that the viewer is passive and active simultaneously, either if he/she agrees or not. One's position is always known, its relative location to other elements in space is calculated, algorithmic, it influences space by its movement and simultaneously is determined by the space. It consumes and furnish instantaneously. As space is transgressed, the viewer accumulates and distributes information and data. One leaves in his path a thread of digital crumbs, which signal intentions just as much as they determine possibilities (Vidler, 2002). It is not a question of possible utopia or feared dystopia, the paradigm of either of them also lost much of its relevance. It is the here and now, the submergence experience of the body within the accumulated data and visual overload, with its shifting, fragmentary, partial, discontinuous nature. It is rather the reality with all its possibilities, endless occurrences, and constant undetermined conditions, which requires our utmost and constant attention. Reality shows, documentary, news (fake or not), public reaction and petty discussion between all sorts of society members (twits and comments) have become of dominance (see Figure 4).

Figure 4.*Spatial Indeterminacy (Unedited Image)*

Contemporary architectural thinking is experimenting with the conceivable consequences of integration of projections, data, computer generated forms and methodologies, and their influence on architecture. Works of Toyo Ito, Marcus Novak, KasOosterhuis, among others, has aimed toward finding integration of form, methods, and production for this new era (Gregory, 2003). It is of importance not only to point toward the current state of affairs but also to mention the transforming importance of architectonic issues: the position of nature, the transition from outside to inside, the facade, design methodologies, the role of data, the architectural coherency and visibility of the architectural object, the symbolic characteristic

of the architectural object, and more. This can be argued of course, but it is not contended that these values and ideas have disappeared but rather that their importance and dominance are in a radical state of transformation. This takes place on the expense of the submergence of the individual in, what I contend to be, the critical mass of superimposed regular space and projected space.

Conclusions

At a first phase after the appearance of new material or technology the questions applied to it are usually the questions pertaining to the previous era. It takes incubating time for new questions and ideas to emerge, take form, establish themselves, to become commonplace. It is usual for the material or technology to presuppose the ideas. Continuing along this line of thought, in relation to the role of 'projection surface' within architectural space, we can assume that the right questions have not emerged yet. That the main themes have not been pointed out. That we have not embraced the full potential and possible implications of this technological revolution. What are the questions to be asked? Are the questions applied for the integration of 'projection surfaces' as building material of any relevance? Although 'projection surfaces' are new and developing, its conceptual framework is rooted in the earliest manifestations of habitable space. Evidence for this are the early works of art by Fra Angelico's. Yet 'projection surfaces' should not be thought of as mere decorative or coating material. It should find its manifestations in the possibilities it carries to transform architecture and architectural thinking. It is our duty to inject the consequences of 'projection surface' into architectural discourse, experimentation, and not the least architectural education.

Architectural space is in a process of transforming and adjusting rapidly to current technological, cultural, economic, and social advances. The possibilities of 'projection surfaces' are becoming apparent and substantial more and more almost every day. As 'projection surface' imagery is becoming more commonplace and more integrated in every spatial condition of built architecture. Many instances flourish, such as the claim by Gregory that architecture is becoming a "surface of communication", or the evocative interpretation of Lavin of "kissing architecture". It is no longer a separate object within architecture, nor is it a medium which requires separate space or expertise. It can no longer be ignored or dismissed as not possessing the timelessness of stone or wood. It is transforming architecture, as much as it transforms the social fabric of our society and the social spatial conditions in our cities.

On the horizon of the 'projected surface' we can notice the rise of the virtual, the interactive, the holographic, and the augmented. The specific impact of these technologies is to be prophesies, which is not in the scope of this paper. Even a superficial observation on recent and rapid developments and changes brings up the obvious conclusion that 'projection surfaces' and digital imagery will emerge with evermore increasing presence and influence

on our spatial environment. Although the specific consequences cannot be pointed out, it is right to assume that they will be surprising and unpredicted. Yet it is a fair assumption that they will evolve upon the same lines: fragmentary, partiality, and unpredictable chance-like experiences, further intermingling reality with the imagined.

The introduction of 'projection surface' onto architectural space creates a visual mixture, a hyper-multiplicity of imagery and content. The superimposition of conflicting, and shifting viewpoints, scales, meanings, and mediums creates a flat surface of unmeasurable depth. This is characterized by constant discontinuity of space and consciousness. Perspective does not order objects in space, and time does not regulate actions. As exemplified by the experimental works of Diller &Scofidio discussed earlier. Our bodies are immersed in imagery overload, which continue to flow endlessly, with no apparent objective, intermingle un-purposely in unpredictable manner, and superimpose in countless formations. The unexpected is the only predictable, the unstable is the only constant, disharmony is the only rhythm, discontinuity is the only permanent, fragments are the only whole. In which the real or the haptic is neither central nor determinative.

In this sensory overload, the body is simultaneously creator, participant, and a helpless victim. It is a kaleidoscope with no geometric logic, a wonder world of Alice, Piranesi-prison gone haywire, Tower of Babel in every store-front, a jungle of possibilities, it is world submerged in its own dream. This can be read as collapse of order or rather an emphatic and human externalization of our inner consciousness. As are these words by Italian writer Italo Calvino, taken from his last delivered lecture series, just before his death, so tellingly titled "Six Suggestions for the Next Millennium":

> *"… who are we anyhow, who is each of us if not a collection of experiences, data, readings, imagens? The life of each person is an encyclopedia, library, items list, collections of styles, and all can mix constantly and rearrange anew in all possible manners"*
> *(Calvino, 2012, p.172).*

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