INTERSPACE [Inter • play • ce]
Using form to clarify and create dynamic, hybrid and mimetic spaces

Design Research Project APG5058S
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by

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ABSTRACT / PROJECT OUTLINE

This design research project is an investigation into the creation of dynamic spaces using form as a mode of exploration. It stems from a personal interest in theories such as hybridity and mimesis; and how these theories can be applied in architecture to create unique and dynamic spatial conditions. The title, Interspace (inter • play • ce), is derived from the idea of the spatialization of interfaces between forms and programmes (although I have limited this investigation to different forms); that is, an interface becomes an Interspace.

This research document is subdivided into five chapters: (I) an introductory chapter describing the design proposition and site selection through a programmatic narrative; (II) the theoretical framework of the project; (III) a critical response to the theory as it relates to the architectural design; (IV) the methodology in locating and critically analyzing the site, and its subsequent design process; and finally, (V) some concluding remarks.

This document intends to be an evaluation of the theoretical position and its translation through design. It is by no means a step-by-step guide to creating dynamic spatial conditions (Interspace); but rather a critical analysis of my methodology, highlighting potential flaws and strengths.
CHAPTER I
DESIGN PROPOSITION

The proposal is to design a multimedia library and gallery. The site chosen is located on the corner of Church Square and Parliament Street in the Cape Town city bowl and consists of two buildings that are part of the Creative Cape Town Development Initiative. This building will primarily function as a public library for electronic information incorporating public internet access, a video archive, audio archive, digital books, audio books, a local library wiki (user built body of data) and walkthrough education media.

This idea is fuelled by a desire to design a building that will be accessible to a variety of different cultures, social groups and classes which is reflected in the site selection through its central location to a number of key public spaces (Company Gardens, Green Market Square, St. Georges Mall, Parliament Street, Cape Town Station, Grand Parade and Cape Town Library).

The media gallery will function independently of the library. It will be used as an exhibition space for creative media projects such as digital artwork, audiovisual theatre and audio exhibitions. The site neighbours the recently established South African branch of the SAE Institute, the largest international creative media school. This gallery can be used by such institutions as a student exhibition / function space as well as a digital art gallery.

Addition programmatic elements include a restaurant / cafe, staff offices, auditoriums and private offices. The objective of this project is to critically implement the theoretical framework through design, creating dynamic spaces and forms that not only carry architectural significance but also engage with social consciousness through programmatic relevance.
CHAPTER 1

MAP LOCATING THE SITE WITHIN THE CAPE TOWN CONTEXT
CHAPTER II
THEORETICAL FRAMEWORK

Architecture could be described as the art of contradiction, the pulling together of opposing forces to create a new and consolidated entity. Architecture is not simply putting a roof over one's head; part of its wonder is found within the contrasts of solid and void, form and programme, visualization and actualization, order and freedom, rigorism and autonomy; each element painted by the critical brushstroke of the architect. It is the solid that creates the void; the form that defines the programme (or visa versa); the visualized that gives birth to the actualised; the order that defines freedom; and rigorism that allows for the autonomous moment.

This project intends to investigate such an interrelationship; that being between formal composition and the spaces it creates. It is important to note that the theory discussed in this chapter must bear architectural significance or else one can get trapped within a cyclic motion of imagination without ever understanding the issues of realisation. Additionally, the spaces created cannot remain undefined and abstract but should rather be viewed as a design objective or architectural goal that drives process. Without vision this theoretical investigation will remain abstract and thematic. Space is purely a quantitative element: architectural vision qualifies space.

SPACE AND PLACE

Space in its essence is undefined and immeasurable. It is generically understood as the "volume or dimensional extent that is, or may be, occupied by a particular thing." However, in architecture space is generally understood as the three-dimensional region encapsulated by built form. Whether infinite or limited, space can always be understood as width, depth and height. This means that architects often treat space simply as a quantitative measure, removing any form of qualitative identity. Therefore in order to visualise space it must evolve into something both quantitative and qualitative: place.

Kim Dovey illustrates this notion in his essay "Place / Power" where he notes that

the understanding of place "involves a reassessment of the concept of 'space' in experimental terms rather that geometric terms, and a concern for the ontology of 'dwelling'. It is an attempt to construct a theory of architectural meaning from its grounded reception in everyday life." He continues to argue that while the "interaction of people with the built environment is the primary generator for place," it is a social consciousness (not the individual) that gives a place its power.

Dovey's argument encapsulates the defining attribute between space and place – the qualitative perspective of social consciousness; that is, how space is treated by the collective in their interaction with both one another and the built environment. From this it can be deduced that in order to design successful spaces that become places, the architect must think both critically and projectively about social consciousness. The power of this perspective is that place-making moves away from an intangible concept of 'sense of place' into an understanding based on pragmatic process through critical judgement. In essence, it is this understanding that forms the backbone of the architectural intent for space. A space becomes more than geometry when it is designed to act on social consciousness; and by projecting a social vision to space, the form that encapsulates it becomes more than simply form but rather the mode of place-making.

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CHAPTER II

INTERSPACE

"We are now searching for a new invention or substitution of how we might create places of interaction in a city that has changed in scale... How do you... craft a place where people feel good relating to each other?... What are the issues in terms of scale and light, etc... Each of these nuances could put off the chemistry that makes these places work."

Moshe Safdie

In his lecture at Eleanor Roosevelt College in 2003, Moshe Safdie encapsulated a profound truth regarding the way in which people interact with each other and architecture. He argues that due to the progression of building technology and the introduction of the automobile, the urban environment has changed so dramatically - particularly in scale - that in order to create an architecture of interaction, architectural thinking must undergo a paradigm shift.

This notion has given birth to the concept of Interspace, a term defined in this thesis and used to describe dynamically qualitative spaces. Interspace speaks of interaction, possibility and a projective understanding of social consciousness. It is not a generic term or theory used to describe space, but rather a space in which a visualized goal is actualized. The significance of this differentiation is that Interspace is spatial; however, it is not merely qualitative, but also quantitative and therefore it locates itself as a 'platial' architectural element.

However, before Interspace can be fully unpacked, it is necessary to discuss two architectural theories in which the concept of Interspace is rooted: hybridity and mimesis.

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CHAPTER II

UNDERSTANDING HYBRIDITY

The theoretical construct of hybridity originated within the collapse of the binary language of structuralism and colonialism: encapsulated by the 'us & them' mentality; which recognized the cultural and 'sophistication' barriers of the colonized world.

With the destruction of the absolute (structuralism) came post-structuralism; a theoretical school of thought that explored the 'us / them' and 'us & them' laying the foundations for postcolonialism. These new ideals created a relationship between the colonizer ('us') and the colonized ('them') forming the backbone of hybridity - namely, that through the integration or interaction of the colonized and colonizing culture, a new hybrid culture will emerge.

Hybridity's name is derived (somewhat obviously) from the word hybrid meaning "anything derived from heterogeneous sources, or composed of different or incongruous elements." The theoretical understanding, as defined by Homi Bhabha, is "the straddling of two cultures and the consequent ability to negate the difference." In lemons terms it is the combining of two or more contradicting cultures into a new hybrid culture. However, Bhabha's analysis of this combination is far more complex. He focuses on the space at which this interaction occurs naming it the third space. Bhabha emphasizes the importance of this third space, to the extent that this space becomes the apex of his understanding of hybridity. Whilst the third space cannot be defined as hybridity, it is really the melting pot; the space in which hybridity occurs. It is within this pot that Bhabha claims hybridity takes form as a cultural identity; a tool that Bhabha believes will help "overcome the exoticism of cultural diversity."

Within architecture, the theory of hybridity has manifested as the "creation of transcultural forms within the contact zone produced by colonialism"; however, hybridity cannot only be limited to the postcolonial context. This is because the

third space, by definition, will exist as a buffer between any two colliding (but not necessarily contradicting) cultures. For this reason hybridity is more accurately defined as the creation of transcultural forms within the contact zone of two or more cultures. The reason for this redefining is that cross-cultural influence works well beyond the parameters of colonialism and therefore no culture — pre or postcolonial — can define itself as pure or essential.9 Furthermore, if hybridity is defined strictly within the parameters of a colonial (or postcolonial) context, it would become absolute, rigid, and limited where — according to Bhabha — “all forms of culture are continually in a process of hybridity.”10

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LOCATING HYBRIDITY WITHIN INTERSPACE

The relevance of hybridity as it relates to *Interspace* is that whilst by definition (according to Bhabha) hybridity refers to creation due to cultural reference, in reality hybridity and the *third space* exist as a result of the junction between different forces. For example, Joseph Fenton discusses the theory of hybridity in his book "Pamphlet Architecture: Hybrid Buildings"; however he makes virtually no reference to cultural collisions but rather uses the notion of hybrid architecture to map of the typologies of American mixed-use buildings. Fenton subcategorizes buildings into three hybrid systems: fabric, graft and monolith; each category being a result of a programmatic or formal response. This discovery is in no way unobvious; though perhaps less pronounced in 1985. Hybridity, as Fenton describes it, is in many ways synonymous with all contemporary architecture; that is, architecture as a whole is a reflection of multiple sources of influence. One doesn’t have to look far to discover a hybrid programme or form.

This argument is justified further when considering the globalized world (or the Foucaultian "Heterotopia") where multiplicity is constantly observed and explored. Hybridity cannot not be limited (or simplified) to the creation / merging of cultures, forms and programmes; it has an almost limitless ability to create new styles, technology, systems and typologies within architecture.

The power of this perspective is that *Interspace* can gain its quality (and thus its value) through a process of hybridity because it can create dynamic relationship between architectural elements and social interactions. This statement is justified when examining an example such as Steven Holl’s (editor for Fenton’s fore-mentioned book) aptly named Linked Hybrid currently under construction in Beijing. Holl describes this building in three levels, each characterized by its own unique form of circulation. The ground level utilises what Holl calls ‘urban porosity’ through multiple perforations that create a single urban plane. The intermediate level serves as a bass-loop, nuanced by roof gardens; and finally, the upper level characterized by a sky-loop twenty storeys above the ground level. The Architect uses this hybrid circulation system (three routes becoming one system) as a central theme in depicting the ‘spirit of the pedestrian community’

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of Beijing. The programme of this system "aspires to be semi-lattice-like rather than simplistically linear"\(^1\) with the ability to "constantly generate random relationships." The hope of Steven Holl Architects is that through the junctions (third space and thus, hybridity) of these routes "[t]hey will function as social condensers resulting in a special experience of city life to both residents and visitors."\(^1\)5

In Ethan Spigland’s documentary ‘Linked Hybrid’, Holl describes architecture as a "chiefly experiential condition: the real measure of its success, is its experience; the phenomena of walking through the spaces... and experiencing it every day."\(^1\)6 This notion, especially when considering Linked Hybrid, alludes to the creation of social consciousness; and therefore, depicts how the implementation of a hybrid system can evoke a 'sense of place' and thus interspace.

\(^{15}\) Ethan Spigland (Director). "Linked Hybrid", Pataphysical Production. 2005.
\(^{16}\) Ethan Spigland (Director). "Linked Hybrid", Pataphysical Production. 2005.
CHAPTER II

UNDERSTANDING MIMESIS

Mimesis can be defined as a tool of visualization, from which a process of actualization is born. As the term suggests, it directly refers to a form of mimicry within architecture where “[t]he identity of the subject is... not established in a completely autonomous way, but is formed on the basis of elements that come from the outside and that are mimetically approached.”

In her book “Architecture and Modernity: A Critique,” Hilde Heynen argues for the relevance of mimesis as a visualizing tool that allows for a “critical treatment of [a projected] social reality” yet incorporates “[t]he recognition of an autonomous moment.” In simpler terms, it is the notion that as an architect, one must design towards a continually changing social reality or dynamic utopian vision; the practical result being a design (or urban system) that is multifaceted, catering for a variety of social systems, and evolving accordingly within each independent facet – that is the ongoing evolution of a building.

This concept is also discussed (under a different guise) by Robert Somol and Sarah Whiting in their “Notes around the Doppler Effect and Other Moods of Modernism.” Their argument, while very verbose, is that in order to cater for the complexities of modern architectural practice, architects must be multi-disciplined and incorporate a mimetic response that they dub as The Doppler Effect (scientifically: “the effect on sound, light, or other waves of relative motion between the source of the waves and the observer” or – more simply – the perceived change in the sound of a car as it drives past).

While this concept may sound like a mouthful, it speaks of a new level of complexity in which a true duality of the theoretical (visualized) and practical (actualized) exist. Furthermore, it speaks directly into the fore-mentioned concept of hybridity; where, through the ongoing evolution juxtaposing forces and resulting hybrids, a visualized goal is created that is in a constant state of fluctuation, thus fluctuating the actual.

Heynen refers to Libeskind’s Jewish Museum as a building that successfully illustrates mimesis through the juxtaposition of the actual (existing) and visualized (extension) that intersect to create moments of mimesis spatialized by the void. This example raises two very important notions about mimesis.

Firstly, mimesis is not an all-encompassing quality; it is a confined system/network of mimetic moments. For example, in Holl’s Linked Hybrid, it is the junctions between the circulation routes that generate the mimetic moment. The building itself is not mimetic, but the juxtaposition of routes resulting in the hybridization of space is. In simpler terms, the possibilities generated by the hybrid space create the moment of mimesis through projecting a desired, yet undefined, social reality (thus satisfying Heynen’s definition). Extrapolating from this and Bhabha’s theory, it becomes evident that the mimetic moment is defined by the third space (juxtaposition of forces); that is, it is within the melting pot (the third space) that mimesis is formed.

The second notion regarding mimesis that Libeskind’s Museum raises (which is confirmed by Holl’s work), is that mimesis, or the creation of the mimetic moment, is the result of rigorous investigation and critical thinking. An architect cannot simply intuitively shape a blank canvas and expect a social consciousness to magically implement programme and meaning. Such an empirical concept (as argued by Jean Nouvel in his “Impossible Urbanity”21) is not synonymous with mimesis. Mimesis is a result of extensive critical investigation that recognizes the autonomous moment, but does not rely on it.

CHAPTER II

LOCATING MIMESIS WITHIN INTERSPACE

When referring to the Darwinian notion of fitness and its application to architecture, Moshe Safdie encapsulates both a tool and a warning regarding the generation of the mimetic moment:

"Architecture is seeking fitness, and to seek fitness is not to have infinite possibilities (as many architects believe)... but very limited possibilities... which when we discover... give us an architecture and urbanism of great beauty... [T]his kind of search, and the sense of community that we look for, is the appropriate value to set forth as we try to reinterpret the meaning of architecture..."

Moshe Safdie

In this quote, Safdie unintentionally summarizes the intention and application of mimesis: it is not open-endedness; it is a crafted and carefully implemented tool, which projectively allies with social consciousness, to form a sense of place through the hybridization of social interaction, thus creating Interspace.

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CHAPTER II

UNPACKING INTERSPACE

Now that the theoretical framework (hybridity & mimesis) has been discussed, the unpacking of Interspace can be investigated. It is important to remember (as mentioned earlier) that Interspace is a spatial condition and not purely a theoretical construct. The purpose of theory as it relates to Interspace is to locate, describe and qualify space. With this in mind, Interspace can be described and analyzed through a series of metaphors; these analogies act as a tool of investigation and therefore – as is the temptation with symbolic narratives – are not subject to over-analysis and hyper-intellectualization.

METAPHOR I: INTERSPACE IN A PUZZLE

Think of Interspace as an element of a complex puzzle and each piece as a unique architectural / spatial expression: formal, programmatic or void. Each piece has a different mode of interaction with its neighbours, creating not only a strong architectural language, but also dynamic and hybrid spaces. Interspace is not part of a mosaic; it is part of a system.

METAPHOR II: INTERSPACE IN A NETWORK

Interspace should function as part of a network, one that not only links different programmes, but also forms and spatial conditions. This vascular system is not a simple lattice, but rather a semi-lattice\(^2\) where spaces, programmes and forms will bare different expressions in their weighting, showing higher priority to more significant routes & systems.

METAPHOR III: INTERSPACE AS IT RELATES TO SCALE

Interspaces must manifest in scale if it is to be an architectural element. Without scale it remains a lofty theoretical notion, rather than a quantifiable space or system. Furthermore, it should not only function at an architectural scale, but also relate to the creation of urban fabric, detailing and tectonic.

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CHAPTER II

METAPHOR IV: INTERSPACE AS IT RELATES TO HIERARCHY

Each piece of the puzzle will have a weighting depending on its programme, form, function, capacity and requirement. By understanding this level of priority, each piece is automatically placed within a hierarchical system. By celebrating this hierarchy through architectural response rather than treating it as a random weighting mosaic, hierarchy can not only reinforce the metaphors of network and puzzle but also create an ordering system that can inform formal response and programmatic layout. Hierarchy cannot be overlooked as an integral part of place-making, as it creates varied and dynamic experiential moments.

THE SIGNIFICANCE OF THE METAPHORS TO ARCHITECTURAL MEANING

One of the dangers of using symbolism to describe actualism is that one can get caught up in a theoretical maelstrom. This is why it is good to constantly remind oneself that Interspace is actual whilst being rooted in theoretical argument. The metaphors mentioned above are modes of understanding and unpacking Interspace and cannot be taken too literally. That being said, it does lead to the question of how one translates such metaphors into spatial terms.

For this reason, a three-dimensional extrapolation of the puzzle has been designed to aid the investigation of the theoretical qualities of Interspace. The design, for simplicities sake, is an expansion on the most basic of three-dimensional geometry: the cube. By subdividing the cube into a $5 \times 5 \times 5$ matrix and grouping those subdivisions into pieces, a three-dimensional puzzle was digitally created to become a spatialized theoretical concept and thematic reference. Whilst this digital model is scaleless and undefined (and therefore unquantifiable) it serves as a starting point for further investigation into the fore mentioned metaphors and bears greater architectural meaning as it is spatial. The power in using a spatial theoretical concept is that it allows for both theoretical and spatial investigation without the forbearance of actualized form. This is illustrated by Steven Holl in his building Sarphatistraat, in Amsterdam, where Holl uses the homeomorphic mathematical / geometrical model of the Menger Sponge as a thematic reference.24

CREATING INTERSPACE USING THEMATIC REFERENCE & ‘THE THIRD SPACE’

In many ways Interspace could be considered or located as Bhabha’s third space; it is the junction between juxtaposed architectural forces that results in the mimetic moment and sense of place. The question now posed is how does one relate the architectural meaning of a thematic reference (the cube puzzle) to the creation of the third space?

The answer is found within the mimetic nature of the puzzle: it is undefined and capable of an almost infinite number of combinations, much like a Menger Sponge is capable to take on an infinite surface area. The third space within the cube is a forced result of critical judgement regarding the location (on a x, y & z axis) and omittance of the individual pieces. This argument is further reinforced when the individual pieces are considered formal; which is not to say that the building will be formally expressed as the cube puzzle, but rather that the principle of the deconstruction of form to force the third space is a valuable tool in actualizing Interspace.

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LIMITING INTERSPACE: THE FORMAL MODE

Whilst this project has currently only dealt with Interspace and its theoretical rooting, its purpose (as per the title) is to investigate the relationship between form and Interspace. The thematic reference to the cube puzzle has served well as an abstract representation, but the metaphor loses meaning as long as it remains limitless. That is to say, the pieces can represent anything at a visualized level, such as programme, form, cultures or functions.

For this reason it is necessary to practice critical judgement and limit the symbolic representation of the cube. As briefly mentioned above, the potential of this system is realised to a greater extent when it becomes formal, quite simply because the pieces stop being abstract and become spatial. This chapter will now begin to focus on the cube puzzle as a formal element, and how the extracted principles of form are derived to create an architectural language of Interspace.

TRANSLATING THE THEMATIC REFERENCE

Formal / Spatial

PRECEDENT STUDY: SARPHATISTRAAT, AMSTERDAM

Steven Holl illustrates how one can take a mathematical / geometric concept and interpret it without being too literal, creating spaces and interfaces that are not only hybrid but also act mimetically.
LIMITING FORM

Whenever dealing with form in architecture, a single fact should be resonating in the architects mind: form is seductive. By ignoring this, architects become completely preoccupied with the creation of form resulting in weak programmatic response, unfunctional systems and detached social projection. To mix Grecian metaphors, the siren-song of form is often the architects Achilles' heel.

The crux of the argument against a preoccupation with form is simply that it is an unjustified stance hidden behind an arrogant postmodern “well that's my opinion” mentality; without critical process, anything is justifiable. This is even more prevalent in today's day and age, where computer-aided-design is becoming less of a tool and more of a result. Without a perspective of justifiable form, architecture will slowly become a profession filled with mere button pushers; a mind numbing mentality captured by Trent Reznor in the song 'Capital G':

“I pushed the button and elected him to office, He pushed the button and he dropped the bomb, You pushed the button and could watch it on the television, [They] didn’t last too long”
Trent Reznor, 2007

Form should not be treated as a purely autonomous or generative act, which is not to say that there is no autonomous moment or area for generative design, but rather that form in itself should be a result, and a not a means. In the book “The Architecture of Form” edited by Lionel March, an understanding of the process of form-making is outlined: form is something that is created, theoretically predicted and evaluated through context and programme. Without this (or a similar) process, a preoccupation with form can develop resulting in ‘form for form’s sake;’ it is only with a theorized backbone and within a context and programme that form gains scale and meaning.

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ANALYZING, PREDICTING & EVALUATING FORM

Using the cube puzzle as concept for form generation has already been discussed and there is sufficient theoretical backing to justify this action. What will now be discussed is the process of analyzing, predicting and evaluating this form. At this point it is important to reiterate that by investigating the cube puzzle as a formal mode, one is by no means obligated to directly translate its form into an architectural response. The principles of this investigation are universal and therefore are the source of architectural meaning (much like the fore mentioned Menger Sponge).

In his introduction to “The Architecture of Form”, Lionel March quotes the American philosopher, Pierce, with regard to the design of form:

“We conceive of rational designing as having three tasks – (1) the creation of novel composition, which is accomplished by productive reasoning; (2) the prediction of performance characteristics, which is accomplished by deduction; and (3) the accumulation of habitual notions and established values [i.e. evaluation]... which is accomplished by induction.”

Pierce, [n.d.] 29

While March unpacks each step (1-3) as (1) composition; (2) decomposition; and (3) supposition, or hypothesis based on an idea, theory or type; 30 he makes no refer to analysis before the decomposition of the design. This comment is not meant to be a critique of March’s work; it is mere notation with regard to this project’s thematic response. When dealing with the cube puzzle it is necessary to have an understanding the meaning of the interaction between pieces before decomposing the model as a predictive exercise. For this reason is it necessary to alter March’s system into the following phases when dealing with the cube puzzle: (1) composition through creation; (2) exposition through analysis; (3) decomposition through prediction; and (4) supposition through evaluation.


CHAPTER II

PHASE 1: COMPOSITION THROUGH CREATION

According to March and Pierce, *composition* is a process of productive reasoning. It is in this phase that form manifests itself through a combining of theoretical thought, intuitive design (the autonomous moment) and generative form.

It is important to note that (as per the fore mentioned argument against “form for form’s sake”) both the intuitive design and generative form can form part of the formal investigation as long as it is justified by rigorous process and relevance. For instance, what is the relevance of the data and algorithm used to generate form? How did the architect arrive at the autonomous moment? The actual mode for creation of form is less important than the reasoning behind it.

*Phase 1* could be considered a process of visualization. The problem that many architects face is that the creation of form begins and ends at *Phase 1*. Architects often visualize form (that may or may not be justified through process), yet are seldom critical (*Phases 2-4*) in their process of actualization. With regard to the cube puzzle, *Phase 1* was the process previously outlined in the following sections of this chapter: The significance of the metaphors in creating architectural meaning”; “Creating Interspace using thematic reference and the *third space*”; and “Limiting Interspace: the formal mode”.

PHASE 2: EXPOSITION THROUGH ANALYSIS

*Phase 2* is the first in the process of actualization. Its purpose is to expose the architectural meaning of the given form. This is illustrated by once again referring to Holl’s Sarphatistraat where he extracts the principles of the *Menger Sponge* and exposes their architectural significance such as multi-scaled perforation and three-dimensional “openings continuously cut in planes approaching zero volume.”

In the case of the cube puzzle, the architectural meaning is in the notion of interlocking forms, deconstructed and omitted to create a spatial system for *Interspace*.

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CHAPTER II

PHASE 3: DECOMPOSITION THROUGH PREDICTION

The process of prediction is the most complicated of the phases because it requires a projective understanding of social, programmatic, environmental and architectural patterns. Phase 3 is best described as the critical deconstruction of form or implementation of limits, through the incorporation of programme, performance and architectural meaning. In essence, decomposition is the process of reworking the created and analyzed form, through additive and subtractive measures, into an architectural language/typology.

With regards to the cube puzzle, decomposition would be the deconstruction, reconstruction and application of form to create an actualized architectural language of Interspace. Decomposition also creates the opportunity to mimesically engage Interspace through implied and actual space and form. By applying programme, the cube is given scale and purpose which can be architecturally translated as synonymous or antonymous form.

PHASE 4: SUPPOSITION THROUGH EVALUATION

Supposition is defined as "the action of assuming... as a basis of argument or a premise from which a conclusion is drawn." In terms of formal investigation, it is the retrospective process of evaluating exposed and decomposed form through critical assessment of the design objectives. Similarly to decomposition, supposition is a projective principle that works by comparing an assumed/visualized outcome (design objective) with the actualized result of Phases 1-3. In many respects it serves as a firewall for protecting the integrity of the architect's intention. The evaluation of the cube puzzle will manifest itself as a single question: does the space created by form and programme satisfy the definition of Interspace as a dynamically qualitative space?

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CHAPTER II

FURTHER INVESTIGATION: PROTOTYPING

In order to expound on the existing theoretical framework (from a technological perspective), a series of prototype models of the thematic reference (cube puzzle) were built. These models served as a mode of experimentation and were intended to be used as tools for a dynamic system of assembly. Each prototype is a different expression of the same thematic form with the objective of creating a unique understanding about formal and spatial composition. The hope was that through the process of prototyping and subsequent investigation, a greater understanding of the spatial, structural, material and compositional capabilities of the puzzle may be realised.

PROTOTYPE 1: RAPID PROTOTYPING (GROWING MACHINE)

The key principles of the rapid prototype are its precision-and structural rigidity. The pieces slide together and interlock seamlessly. There is virtually no give or tolerance between pieces resulting in a securely interlocked structure when completed. It is only when partially deconstructed that movement and inter-piece dynamics begin to take place. This begins to translate architecturally as an interconnected formal system, where form and structure is dependent on the positioning of other formal elements. By rigidly interlocking form, it is only through the subtraction of specific elements that other elements begin to shift to create a uniquely dynamic spatial condition; the predefined formal system or rules change dynamically as that system is deconstructed.

PROTOTYPE 2: TIMBER MODULES

The modulated construction of the timber prototype is its most unique characteristic. Not only does it allow for a certain level of flexibility (as the model is far less rigid), but it also highlights a mode of modular construction and omittance. This is best illustrated by Moshe Safdie in his building Habitat 67, Montreal, where through a process of modular construction, a unique spatial and formal language is developed. A modular system (as is the case of Habitat 67 and Li Hu's XYZ house) also notates the possibilities of translating the thematic reference as a prefabricated system and allows for limitless formal combinations and spaces.
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PROTOTYPE 3: PERSPEX MODULES

Whilst also constructed in a modular fashion, it is the transparency and translucence of perspex that gives this model its unique value. Unlike the timber prototype, the perspex model is brittle and inflexible (much like glass) raising unique structural questions when translating it architecturally. However, the more prevalent architectural question is, how does transparent form relate to its opaque counterpart? Is the omittance of form the same as transparent form and, if not, how does space, solid form and transparent form relate?

PROTOTYPE 4: POLYSTYRENE MODEL

The most noticeable characteristic about the polystyrene model is its incredibly light weight. This leads to the obvious question of lightweight structures and materials; however that is a far less interesting question than formal density. Density should not be confused with translucence or perforation (though it could be expressed that way). It is a more question of weighting / emphasizing architectural elements. The core structure is generally hard, heavy and cold; yet other architectural elements are perceived as soft and light. How does one dissipate and concentrate the formal attributes of a building? How does dense and lightweight form interrelate and coexist within the same formal language?

PROTOTYPE 5: WIRE-FRAME MODEL

The wire-frame model is at first glance the easiest of the prototypes to visualize architecturally. This is simply because its construction bears significant resemblance to the frame structure of a building. However, its architectural significance is rooted within the way that the horizontal and vertical planes interact. These planes are easily translated as architectural elements running along the XY, XZ or YZ axes, supported by a lightweight structural system, a relook at Mies van der Rohe’s German Pavilion. This prototype illustrates how formal elements can begin to express different spatial qualities and spatial interconnection by limiting their form to a single axis. This is not a process of omittance, but rather one of the deconstruction of independent forms.
CHAPTER II

PROTOTYPE 6: STEEL-TUBE MODEL

The principle that is most noticeable when examining the steel-tube model is the random patterns created on each of the cube’s six facades by the hollow tubing. While these patterns were in many respects uncontrolled, they illustrate the power of a multidimensional formal system. Each piece or form was designed and built independently resulting in a truly unique aesthetic when the cube is constructed. These ‘holes’ within the facades begin to illustrate not only an architectural aesthetic language (as seen, for instance, in Holl’s Simmons Hall) but also begin to inform spaces within the cube. How does a solid formal element read next to a hollow one? What type of spatial relationships form between spaces created through omittance and deconstruction (as illustrated by Prototype 1) and hollow form?
CHAPTER III
CRITICAL RESPONSE TO THEORETICAL INVESTIGATION AS IT RELATES TO DESIGN

The dilemma when discussing concepts such as place, hybridity and mimesis (as they relate to a qualitative assessment of space) is that one runs the risk of sounding obnoxious. To counter this, this project has attempted to be as pragmatic as possible, discussing a visualized process of form-making for actualization. This pragmatic approach formed part of the reasoning behind the prototype models; however, it is important to note that the both the theoretical and technological investigations, while practical, are in no ways absolute or definitive.

The theoretical investigation has shown that Interspace could be created through a number of approaches; such as a programmatic or social response. The key attribute of any approach is it being a structured critical argument. This is not because a critical approach, as some would argue, is the ‘Holy Grail’ of architectural thinking / process, but simply because, a critical approach is a well investigated approach. Without critical thinking, architecture will begin and end with the whims of the architect (as per the ‘form for form’s sake’ perspective).

This project has chosen to investigate a means for the induction of Interspace through a critical process of form-making. The form itself (cube puzzle) – while being abstract at many levels – serves as a thematic reference derived from a metaphorical unpacking of Interspace. The use of the formal mode is a result of critical judgement regarding the spatialization (induction) of Interspace. The hope was that through the discussed process of unpacking form (Phases 1-4) and the prototyping exercise, the true potential of the thematic reference may be realised, creating spaces that are not only dynamically qualitative, but also architecturally relevant to the design project.

This chapter intends to be a critical response to the proposed ideas of the theoretical and technological positions. Whilst this assessment will predominantly focus on the shortcoming of the work done, it in no ways means that these positions have been unsuccessful in informing process, but rather – like design – there is always room for improvement through further development. Additionally, it is important note that critical assessment comes through design process and not theoretical projection. Therefore, this response should not be viewed solely as a critique but also as a link between theory and design application.
LIMITING THEORY

In many respects it is the theoretical nature of this project that drives it; and for good reason, as it is through the process of visualization (theory) that the process of actualization (design) is informed. However, one of the greatest challenges of this project has been limiting the theoretical vision. This is because it is very easy to get caught up in the limitless possibilities of visualization without dealing with the real design issues. Words beget more words; clarity comes through design.

This is best illustrated by the cube puzzle, which while being limited to a thematic reference for the formal mode, can still symbolize a virtually endless array of forms and theoretical ideas. By applying programme and scale to this reference, it becomes more relevant to architectural design. Similarly, in order to limit the theoretical investigation, it must be constantly influenced by the design process. This dialogue has been difficult to achieve in this project due to the segmentation of theory and design in the course structure, often resulting in inapplicable theoretical tangents. For this reason, the theoretical framework should not be viewed as a static entity, but rather a system that both informs design and evolves with it.
CHAPTER III

INTERSPACE AND SOCIAL CONSCIOUSNESS

As discussed earlier, Interspace aims to be both quantitative and qualitative, its quality gained through social consciousness. However, it is easier to say that space engages with social consciousness than for it to actually do so; and while this relationship cannot be forced through design, it can be encouraged through programmatic response, site selection and scale which has been realised through previous design proposals.

This has shown that in order to create spaces that engage with social consciousness (and thus create Interspace), a programmatic vision must inform both design and its subsequent spatial relationships. This is a process that should in many respects naturally inhabit the practice of architecture.
PREOCCUPATION WITH THE FORM OF THE CUBE PUZZLE

The cube puzzle has proved to be a useful tool in unpacking spatial and formal relationships throughout the design process; however, it has in many ways inhibited formal expression. This is because the forms of the puzzle have at times been more important (or rather, more seductive) than theoretical insight they provide.

The purpose of the thematic reference is to inform the process of design and not to serve as a formal objective. Throughout all the design propositions to date, there has always been an element of 'creating a building that looks like the puzzle' rather than 'creating a building that acts like the puzzle.' Much like limiting theory, a dialogue of critical judgement must be exercised throughout the design process in order to successfully apply the reference without being preoccupied with its form.

image 13: Taipei Performing Arts Centre
This building may look like the cube, but does it act like the cube
CHAPTER III

TRANSLATING THE PROTOTYPES

As mentioned earlier, the prototyping exercise was intended to be a mode of technical experimentation to expound on the existing theoretical data. Whilst this exercise had definite benefits, such as understanding the puzzle more thoroughly through the construction process, the majority of the theoretical information gained through this process was superficial and presumptuous.

In many respects, the deductions attached meaning to the prototypes rather than finding their actual meaning through critical analysis. This is justified when considering that very little of the data (or insight gained) has been implemented in the design process. The models failed to engage with the full technical possibilities of the reference simply because their analysis was not taken far enough or critically examined. For instance, the polystyrene model is supposed to represent architectural density (deduced through its light weight), but how does that relate to the design process? Is that model’s sole attribute its weight? If so, how is that applicable to the thematic reference and architectural design? The power of the puzzle is the way in which the forms interrelate; and whilst the models certainly provided a diverse array of aesthetic and technological systems, the experiment did not engage – or delve deep enough to engage – with the real questions regarding the application of the cube puzzle in design.

Image 14: Precedent Study: XYZ House

Image 15: Precedent Study: Modular System of Habitat ‘67

Image 16: Precedent Study: Safe House
CHAPTER III

COMPOSITION, EXPOSITION, DECOMPOSITION & SUPPOSITION

As mentioned earlier, the theoretical component of this project has focussed on using form to define Interspace. While this decision was critical in limiting the theoretical possibilities of the cube puzzle, it has resulted in an architectural language birthed through formal investigation. Herein lies one of the greatest challenges of this project, as although form is the intended result of theory, it has often become a means to representing theory.

Phases 1-4 were created to critically analyze formal composition through the design process; however, this has been very difficult to implement as architectural and formal design is intuitive and fluid. Furthermore, through the application of programme and its subsequent scale, the realities of architectural design often contradict theoretical intention. For example: how is the cube puzzle and social consciousness applied to a parking structure or private residence? This has made it imperative to select a site and programme that complements the intention of Interspace. Additionally, it has raised further issues regarding the treatment of form as an aesthetic, as the programmatic needs have often deconstructed form to the point where it is an aesthetic treatment rather than space creating entity. For these reasons the implementation of composition, exposition, decomposition and supposition should not only be executed as design phases but also as a critical perspective throughout the architectural process.

THEORY

SITE SELECTION

PROGRAMME

FORM

DESIGN PROCESS
This chapter intends to diagrammatically outline the process of designing this project, focusing on the critical decisions made in the application of theory. It also intends to contextualise the design through the analysis of the greater urban system and the restraints and opportunities of heritage conservation.

**Locating the Site and Programme through Urban Response**

As mentioned earlier, a driving element of the project is that it allows for social consciousness through engaging with diverse social groups, cultures and classes. This desire not only prescribes a programme that somehow incorporates public interaction, but also a site location that engages with the existing public spaces of Cape Town.

In order find a site that satisfied these criteria, a diagrammatic study was done on the city bowl, focusing on two generators for public interaction: movement (such as a transport interchange) and destination (such as a park or library). This process helped narrow down the urban area, and after walking through it, a site on the corner of Church Square and Parliament Street was selected due to its architectural possibilities and central location within the Capetonian public realm.

The primary programme of the media library was developed to be a destination, both adding to the existing public realm (most noticeably the existing library) and creating new infrastructure. Secondary programmes such as the media gallery and restaurant / cafe were implemented as a result of the site opportunities (such as the neighbouring SAE Institute). Additionally, these programmes could expand to other public spaces within the urban area through internet booths, digital exhibitions and advertising and wireless internet hotspots. Furthermore, this programmatic notion reinforces the thematic reference by implying that certain puzzle pieces have been removed from the building and placed within the greater public realm.
<table>
<thead>
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<th>ACTUAL</th>
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![Diagram showing the phases of actual and visual development](image-url)
RESPONSE TO HERITAGE CONSERVATION

This site is graded as a class 3B heritage site under Section 34 of the National Heritage Act, deeming it to be of local significance to the City of Cape Town. Additionally, it is located within the inner city conservation area. In order to adhere to both legal obligations and heritage sensitivity, John Rennie's "The Buildings of Central Cape Town" was used as a guide in assessing heritage value. What was deduced through Rennie's descriptions and personal observation is that the majority of the heritage value of these buildings lies within their ornate and beautifully detailed facades.

A critical decision was made to retain the facades by gutting the building (much like Mandela-Rohades Place in Wale Street) and to treat them as formal elements; that is, pieces of the puzzle. While other elements of the buildings – such as the existing structure and floor slabs – could have been retained as additional puzzle pieces, it was decided that the thematic reference would be better represented if the new and old forms were treated as separate entities between which Interspace occurred. A strategy to remove the certain windows and treat the facade as a screen structure was developed (a reinterpretation of Moneo's Murcia City Hall) in order to aid this design objective. This system not only creates the possibility for new structure to penetrate through this screen, reinforcing the complex spatial relationships of the puzzle, but also serves as protection from the western sun.
DIAGRAMMATIC DESIGN METHODOLOGY

As mentioned earlier, whilst the theoretical component outlined a four phase critical process for the creation of Interspace, this system is also intended to serve as a critical perspective throughout the design process. In order to achieve this, it is imperative to consistently ask whether the form and programme satisfy the definition of Interspace. To aid this process, a programmatic diagram was developed through the application of the programmatic narrative to the cube puzzle. Whilst this diagram was quickly conceived and had minimal influence on formal structuring of the building, it has served as continual reference throughout design, most noticeably in the composition of form. With this in mind, the progression of composition, exposition, decomposition and supposition will now be diagrammatically discussed.

COMPOSITION: GENERATING A SPATIAL CONCEPT

The spatial concept was developed by deconstructing the cube at a set scale within the confines of the existing facades. As mentioned above, the programmatic diagram influenced this process (for instance where general vacancies of form occurred); however, the majority of it was achieved intuitively. The resulting concept diagrammatically locates the new form within the existing, highlighting their spatial relationships and massing.

EXPOSITION: ALTERING THE SPATIAL CONCEPT THROUGH THE APPLICATION OF PROGRAMME

Remaining at an abstract level, the programme was inserted into the spatial concept. This not only began to illustrate how Interspace related to programme, but also located areas for key services and structural elements such as the cores and circulation routes between programmes. Simultaneously, this application of programme illustrated redundant and required forms and spaces. By protectively analyzing how an architectural language would be added, pieces were moved, altered in shape or omitted; a process that continued into the decomposition of form.
CHAPTER IV

DECOMPOSITION: APPLICATION OF ARCHITECTURE TO FORMAL COMPOSITION

To describe decomposition simply, it is the process of converting the formal structure of the spatial concept into a building. In order to achieve this, a combination of three dimensional design and planning from sectional slices was used.

The challenge (which has continued as the design developed) was that the forms created through composition and exposition were difficult to translate into basic architectural elements such as floor slabs and walls, often resulting in unusable spaces and redundant formal elements. Furthermore, in an attempt to maintain the formal simplicity of the spatial concept, form became an aesthetic treatment rather than the informant for Interspace.

SUPPOSITION: THE ONGOING PROCESS OF BETTERING DESIGN

As mentioned before, supposition is the retrospective critical analysis of the design in relation to the design objective, a process that in many ways occurs throughout Phases 1-3 and could continue post construction. At present, the design is in its third revision and has dramatically changed since decomposition. The most critical aspect to supposition is the understanding that whilst the formal design has been prescribed by the phases, it is in no way absolute. This is not to say that previous phases can be ignored or omitted, but rather that composition, exposition and decomposition serve as a tool for generating architectural form and language, but not the finished product.
CHAPTER IV

CRITICAL ANALYSIS OF THE DESIGN METHODOLOGY

The four design phases have intended to inform the process of design, so that the creation of Interspace through the formal mode may be critically justified. This process has been incredibly successful in both theoretically informing design and maintaining continuity towards the design objective; however, there are certain elements to the translation of the thematic reference that have been overlooked.

One of the most critical attributes of the cube is its ability for the relationships of the individual pieces to change as it is deconstructed. That dynamism has unfortunately not yet been successfully translated in the design, as the phases have captured a static version of the cube. While this dynamic is incredibly difficult to create within a building, there is definite room for this to be explored through precedents such as Safe House by KWK Promes. Furthermore, the programme allows for that dynamic to be referenced through the evolution of digital displays (for example, a dynamic image projected onto form). Whilst these systems are still under investigation – and may be unnecessary – they allow for a spatial dynamic through media and human interaction, reflecting a social consciousness that qualifies space.
CHAPTER V
CONCLUDING REMARKS

This design research project has outlined the theoretical framework and its application to design through critical analysis, the majority of which has focused on the shortcomings of this process. However, whilst it is imperative to be aware of the potential flaws, the theoretical framework and its application have been incredibly successful at informing a mode for the creation of Interspace.

The real strength of this project is the way that it has provided a new methodology for the design process that is inherently rooted within theoretical argument. In many respects, this has been both the challenge and exciting element of this thesis, as it has stretched the way in which I both view and develop architectural design. Furthermore, it has pushed me beyond my comfort zone of intuitively creating forms and spaces, to rigorously examine my reasoning and methodology throughout the design process.
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Online Information


Additional Information


Image References


Image 14: "XYZ House".


Image 16: "Safe House".


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