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DESIGN OF VISUAL AND PERFORMING ARTS INSTITUTE, GUYANA, BASED ON SENSORY USER EXPERIENCE

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Is truly the result of independent, intellectual work, completed without the use of materials that are not permitted and are not the work of other parties that I admit to be my own work.

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ABSTRACT

This thesis explores the existing relationship between human experience and creative physical settings through phenomenological theory. From this perspective, it can be seen how the built environment, may actively hinder or encourage one's creative capacity. This thesis aims to design an Institute of the Visual and Performing Arts in the city of Georgetown, Guyana based on sensory user experience. Guyana is known for its rich culture; as such, the creative arts industry is a source of potential economic and cultural development to the nation. The institute will serve as a unique facility for the production and exhibition of creative content which align with the nation's developmental goals.

The perceptual experience of individuals during the creative process is examined to understand their preferences of creative spaces, while the concept-based framework is used to derive appropriate design responses. The research is done through phenomenological analysis and a model of attention to situate the creative process in the built environment, thereby identifying the needs and quality of spaces regarding sensory information in the physical setting. The concept, 'architecture as adventure' is derived from the initial idea of dreams and is applied to architectural situations through design techniques to generate organizational arrangements.

The results show that creative individuals utilize and configure spaces of high or low sensory information as needed throughout the creative process. Therefore, movement and access play an important role in spaces conducive to creative activity. This also facilitates social engagement which is necessary in varying degrees in the explorative and evaluative aspects of creation, while acting as the foundation for sensory experience. Architectural features discussed in the resulting design include circulation and function, mass and form and the integration of social space with the natural environment. Nature and other sensorial elements such as light, color, texture and sound are also considered in the physical setting as important aspects of design.

Keywords: creativity, experience, institute, phenomenology, stimuli

DESAIN INSITUT SENI VISUAL DAN PERTUNJUKAN ARTS, GUYANA, BERDASARKAN SENSORI-USER EXPERIENCE

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ABSTRAK

Tesis ini mengeksplorasi hubungan yang ada antara pengalaman manusia dan pengaturan fisik kreatif melalui teori fenomenologi. Dari perspektif ini, dapat dilihat bagaimana lingkungan fisik, dapat dalam secara aktif menghambat atau mendorong kapasitas kreatif seseorang. Tesis ini bertujuan untuk merancang Institut Seni Visual dan Pertunjukan di kota Georgetown, Guyana berdasarkan pengalaman pengguna sensorik. Guyana dikenal karena budayanya yang kaya; dengan demikian, industri seni kreatif adalah sumber potensi perkembangan ekonomi dan budaya bagi bangsa. Lembaga ini akan berfungsi sebagai fasilitas unik untuk produksi dan pameran konten kreatif yang selaras dengan tujuan pembangunan bangsa.

Pengalaman persepsi individu selama proses kreatif diperiksa untuk memahami preferensi mereka atas ruang kreatif, sementara kerangka kerja berbasis konsep digunakan untuk memperoleh respons desain yang tepat. Penelitian ini dilakukan melalui analisis fenomenologi dan model perhatian untuk menempatkan proses kreatif di lingkungan yang dibangun, sehingga kebutuhan dan kualitas ruang diidentifikasi mengenai informasi sensorik dalam pengaturan fisik. Konsep, 'arsitektur sebagai petualangan' berasal dari ide awal mimpi dan diterapkan pada situasi arsitektur melalui teknik desain untuk menghasilkan pengaturan organisasi.

Hasil menunjukkan bahwa individu kreatif memanfaatkan dan mengkonfigurasi ruang informasi sensorik tinggi atau rendah seperti yang diperlukan sepanjang proses kreatif. Oleh karena itu, gerakan dan akses memainkan peran penting dalam ruang yang kondusif untuk aktivitas kreatif. Ini juga memfasilitasi keterlibatan sosial yang diperlukan dalam berbagai tingkat dalam aspek eksplorasi dan evaluatif penciptaan, sementara bertindak sebagai dasar untuk pengalaman indrawi. Fitur arsitektur dibahas dalam desain yang dihasilkan termasuk sirkulasi dan fungsi, massa dan bentuk dan integrasi ruang sosial dengan lingkungan alam. Alam dan elemen sensor lainnya seperti cahaya, warna, tekstur dan suara juga dipertimbangkan dalam pengaturan fisik sebagai aspek penting dari desain.

Kata Kunci: fenomenologi, institut, kreativitas, pengalaman, stimuli

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CHAPTER 1
INTRODUCTION

1.1 Background

Architectural design is largely concerned with the functionality of buildings as predicated by the needs of specific user activities. And, while the design of the built environment is usually successful in providing these functional needs, it is vital to consider that its design also inherently influences human perception and ultimately their experiences. This relevance is seen in the large amounts of time users spend in constant interaction with the built environment (Augustin, 2009). While the elements of the physical environment may not always be particularly salient, their combination produces an overarching atmosphere whose character is communicated to users upon interaction with that environment (Pallasmaa, 2014). The atmosphere is presented by varying sources and degrees of stimulation generally based on the needs of the specific user activities to be fulfilled by the building (Heath, 1984). It can, therefore, be inferred that architectural quality is not only derived from a focus on functional needs but also from consideration of the users' experience in relation to the design of the building.

As evidenced by the activities to be housed in buildings of the creative arts, the quality of user experiences is one essential factor in design of such buildings. These facilities are geared towards the production of creative content and the exhibition of the contents produced. Thus, the environment is required to be conducive, both towards the production of creative content and also to the intended audience. In Guyana, the cultural and creative arts industry is a potential source for economic growth and development of the nation which also aids in cultural longevity and social cohesion (GuyanaTimes, 2016). Guyana is a Caribbean nation which lies on the northern coast of South America bounded by Venezuela, Suriname and Brazil (see figure 1.0). It's tropical climate and rich history is expressed in its colonial architecture and diversity of people and culture (Edwards, Wu, & Mensah, 2005).

Figure 1.1 Location of Georgetown, Guyana (maps.google.com, 2019)

As a developing nation, the continued growth of the creative arts industry depends on the appropriate infrastructural development that supports the production of creative content, tertiary education and meeting standards required by the industry (Hendrickson, Lugay , Caldentey, Mulder, & Alvarez, 2012). Current facilities dedicated to the creative arts industry have in some cases been in existence for decades, such as the National Cultural Center (see figure 1.1). This establishment has since been subject to states of disrepair and in constant need of continued renovations involving technical and functional issues (Wyckham, 1986), which have over the years cumulatively resulted in underutilization of the services provided (KaieteurNews, 2014).

Figure 1.2 National Cultural Centre, Georgetown, Guyana

Thus, an investment towards a building dedicated to the creative arts industry of Guyana would align with future developmental goals of the nation. While there exists a number of creative arts schools in operation, Guyana lacks a collective educational institution (KaieteurNews, 2016). Such a building would provide a physical space for creative individuals to engage in the development, production, storage and dissemination of high quality products and the expansion of tertiary education. The design of such a building would then require that appropriate consideration be given to the quality of user experience for designing a favorable environment conducive to the range of activities to be held therein.

Favorable user experiences are highly dependant on the atmosphere provided by a well-designed environment to positively influence the experience (Augustin, 2009). Thus, in the design of such facilities equal value can be placed on the functionality of the building in relation to the activities housed therein, and also on enhancing its experiential character through providing appropriate mental stimuli. In this way, the surrounding environment can also provide a positive influence in support of the development of creative work (Runco, 2010). For the purpose of achieving such experiential quality, it is necessary to first understand exactly how user's experience is influenced by the environment. After which, the principles explored can be used to create an environment where user experience is enhanced and stimulated by the suitable arrangement of architectural elements related to environmental stimuli. This understanding would help to inform the design of more appropriate facilities for the creative arts in Guyana.

Much of the understanding of environmental influences on human experience has become clearer with developments in the study of cognition, perception and phenomenology in architecture (Edelstein, 2016). This knowledge provides a basis for informing design which considers experiential effects of architecture. The theory of phenomenology in architecture explores how the environment is perceived through human sensory capabilities and its contribution to our subjective experience of places (Hale, 2017). We naturally sense buildings in a way that is almost entirely subconscious, we feel the quality of the space and receive information about the atmosphere (Borch, 2014). This experience of space occurs through an embodied perception and allows the sensory organs to receive

real time information about the environment, allowing the individual to have a complete understanding of the atmosphere (Pallasmaa, 2005). Additionally, unlike other modes of attention, focused attention notices sudden variations in the visual field which arouse the senses and provides 'astonishment'; a quality which is stimulating to the mind (Mallgrave, 2010)

Moreover, given that the function of the building is geared towards facilitating persons within the creative arts industry, attention can also be given to the effects of the external environment on the creative process. It has been discovered that to some extent and in no way deterministically, creative potential is also influenced by conducive physical environments (Runco, 2010). Particular studies on the creative process of the brain suggests that "much of the inspiration for creativity is a result of a mental state where attention is 'defocused', thought is associative and a large number of mental representations are activated at the same time" (Kaufman, Kornilov, Bristol, Tan, & Grigorenko, 2010). This process aligns with the way in which humans perceive the environment, not at first through detail, but according to Pallasmaa, "the judgement of environmental character is a complex multi-sensory fusion of countless factors which are immediately and synthetically grasped as an overall atmosphere, ambience, feeling or mood." (Pallasmaa, 2014). Here, the idea of atmosphere corresponds to a defocused mental state, in which multiple mental representations are stimulated at once. (McCoy & Evans, 2002). The convergent aspect of creativity involves the processing of information in different areas of the brain as opposed to divergent thought. The environment would then be adjusted in the levels of stimulation which align with the characteristics of each mental process.

For these reasons, in creating stimulating atmospheres, the appeal to human sensory capability is the main focus. Appropriate levels of stimulation are necessary to achieve a good quality of design for a facility of this kind. Different functions would define the degree of external stimuli that aligns with the fulfilment of the building's purpose (Augustin, 2009), so that the environment is not overly stimulating or below moderate. The atmosphere is felt by the sensory capacity of users and in any given physical environment the combination of architectural and natural elements together dictates the mood and atmosphere of the space

(Pallasmaa, 2014). Natural and architectural elements can therefore be used to maximize the quality of human experience. These may include, but are not limited to, the scale, shape, form and mass of the building, and also the use of light, texture, color and the degree to which nature is incorporated.

Light is the foremost natural element that stimulates our awareness and brings the environment in focus. Light when shed on surfaces also creates edge and depth which are perceived as the transition of ‘outside’ and ‘inside’ (Bader, 2015), while light produces contrast and shadow, color and texture are also influenced by its presence. Light influences everything the eyes see and the what the senses feel (Holl, 1994) and without it there would be no context for architecture, it brings meaning to all other architectural elements.

Another factor that plays an important role in our perception and experience of atmospheres in architecture is color. Color brings life to the building by emphasizing forms and materials, brings meaning to the atmosphere and can affect the mood (Rasmussen, 1962). Color is at times symbolic, and its perception is related to specific places, occasions, climate and culture (Holl, 1994).

Rhythm in architecture is a subtle factor, it expresses movement and is relevant to time, its experience gives a feeling of heightened energy, as can be seen in music. Rhythm also gives sense of continuity, order and totality, its perception is also influenced by cultural and traditional norms. Rhythm in architecture are evident in the style of historical periods and even today in regionalism. It brings a sense of comfort and clarity, and removes tension and mystery from the atmosphere (Rasmussen, 1962).

As described by Steven Holl, water is as “a phenomenal lens with powers of reflection, spatial reversal, refraction and transformation of rays of light”. This phenomenon also uses an interesting interplay of light and colors to produce stimulating scenes (Holl, 1994). It also introduces sound, for example, the gurgling of a stream of the flow of a cascade of water. Additionally, water is associated with health and purity and it introduces feelings of freshness to the atmosphere.

These phenomena involving the combination of natural elements and elements of architecture create stimulations to the mental faculties. They also bring meaning to architecture. It can be seen that culture, climate and situation also

influence the way we perceive and experience architecture. A few precedents are studied to explore the functional aspects of the building's typology and to understand how phenomenological principles can be applied to influence user experience by way of the senses.

The first precedent, located in Spain, is the Almonte Theatre designed by Donaire Arquitectos. The conceptual approach sought to fit the building into its culturally sensitive location. The general design explored this relationship between inside and outside, also large to human scale. The phenomenological aspects mainly focus on the use of natural and artificial light in the building, as well as materials and massing & scale (Yin, 2013).

The Agora Theatre, located in the Netherlands was designed by a collaboration of Ben van Berkel, UNStudio and B+M, Den Haag. The main conceptual approach was to revive the surrounding area, through the expression of the building itself as a performance (Yin, 2013). Color is used not as an accent or highlight, but as an intrinsic quality of the whole building, resulting in a unique experience both inside and out.

The Kennedy Center for Theatre and Studio Arts is located in Clinton, USA. The building is an addition to the current Hamilton College Campus, designed by Machado & Silvetti Associates (MachadoSilvetti, 2017). The horizontality of the building is pronounced through its curvilinear form, while functions including theatre spaces, studios and workshops are ordered based on their specific needs. Light, material, form and texture along with color and the natural environment are integrated to express a relaxing and intimate atmosphere.

The City of Arts in Argentina, designed by Lucio Morini is a simple building for visiting artists to be used as a living and working space (Archdaily, 2010). Different colors are used in each studio space, giving each space its own character. The materials and used for the façade intensifies this experience which can be seen from the outside when lighting is integrated with the colors.

The final precedent is the new addition to the Clark Art Institute located in the USA, designed by a collaboration of architects including Tadao Ando Architect & Associates. The plan of the new extension increases the complexity of the existing site (Frearson, 2014). The main phenomenological aspects include light,

water and texture with are integrated in such a way that the unique interplay of these elements provides a refreshing and serene experiential quality.

The precedents studied above either function as a place only for education (as institutional buildings) or only for public functions (as theatre buildings), with the exception of one where the design caters to both user states. In the studies, most attention is paid to visual elements such as color and light, whereas circulation and use of space are treated mostly as functional aspects of the building. The presence of theatre buildings is substantiated by salient forms which are highlighted by the textural materials, colors or form used, while the institutional buildings remain very formal in their expression. Natural lighting, moderate colors and textures are especially present in areas of main circulation and public meeting areas, while in areas where focused attention is necessary the environmental stimuli provided is moderate. The natural environment of the site is integrated with the building for two of the institutional buildings in contrast to, little to no integration for theatre buildings. This is possibly due to the necessity of attention focused toward the content produced within theatres or art galleries, whereas the natural environment would provide the kind of atmosphere that is conducive to learning environments and therefore be an asset to institutional buildings. A summary of the possible design situations derived from the study is shown below (see figure 1.3).

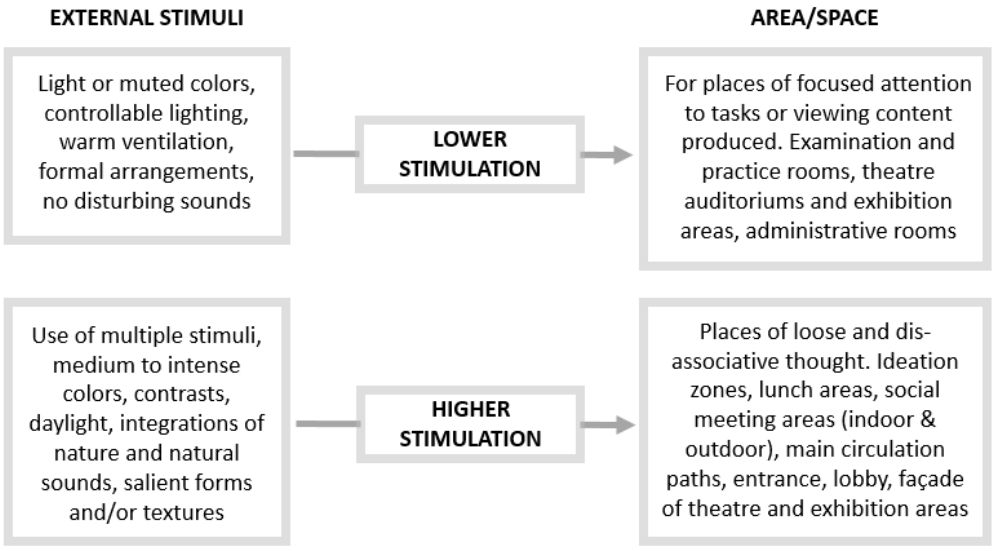

Figure 1.3 Possible Applications to Design Situations (Private Study, 2019)

The novelty of this project is the consideration of the user's experience, through a phenomenological understanding of their perception within the environment. use of metaphor as a source for conceptual development in the making of this project. Situations that are unique to the Guyanese cultural environment will be taken into consideration in the design process, including the proposed climatic context. General principles concerning the human response to sensory information presented in the physical environment will be based on the theory of phenomenology in architectural design. The Design Proposition is an Institute for the Visual and Performing Arts which seeks to integrate cultural values and those highlighted by the theory to create architectural richness. This facility will fulfil not only functional needs of production activities and exhibition of creative content, but also create atmospheres aimed to stimulate and enhance the quality of user experience and learning environment that align with the activities produced.

1.2 Design Problem

The consideration of user's experience in design directly influences the user's experiences in the physical environment. If the design can be made with consideration of architectural elements in relation to user perception of the physical environment, then it is probable that the environment will be potentially stimulating to users and conducive to their creative potential. In this way, the creative potential of users is likely to be accessed and be harnessed, while other users receive a favorable experience.

1. How can phenomenological principles explored be aligned with a relevant design concept to produce an appropriately stimulating design?
2. How can the existing natural environment be used to support the goals of the design proposal?

1.3 Design Objectives

The design goals to be completed are as follows:

1. To identify phenomenological principles that are appropriate for the design of a stimulating environment based on sensory user experience.

2. To produce concepts and the schematic design of the Visual and Performing Arts Institute using ideas which align with the phenomenological approach to architectural design.

1.4 Design Benefits

The design is expected to provide the following theoretical and practical benefits:

1. The theoretical benefit to the academic community is to contribute to the understanding of the theory of phenomenology in architecture and its applications in designs with the main focus as the experience of users.
2. Practical benefits are for the government, the general public and practitioners to contribute to understanding the role architectural design plays on the influences of the built environment on human perception.

1.5 Design Limits

Design limits are stated in order that there is focus on answering the design problems effectively and efficiently, these limits are as follows:

1. The design is to be located in Georgetown, Guyana and therefore the cultural and environmental context must be considered along with perceptual qualities.
2. The quality of the design is to be meaningful and not only symbolic in aesthetic quality.
3. Appropriate levels of stimulation are required from design of the physical environment so that over-stimulation or under-stimulation does not occur in the design outcome. (There is no specific quantified result of over and under – stimulation for each potential user of the design outcome)
4. The researcher's subjective ideas will affect the outcome of the design and possibly the qualitative research.

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CHAPTER 2
LITERATURE REVIEW

This review of literature is composed in relation to the design of a Visual and Performing Arts Institute based on sensory user experience. The output is to be a meaningful contribution to the creative arts industry in Guyana, designed to be of full service to the academic pursuits of students and the entertainment of the public. The literature first presents an understanding of what is a Visual and Performance Arts Institute and the important aspects that arise in the design of such facilities. The use of the facility is to be two-fold; as an academic institution and a source of entertainment for the public. These functions suggest the need of an atmosphere provided by the design of a facility where users' experiences are engaged and stimulated. This interaction between the body and the building is explored through the theory of phenomenology as it applies to architectural design (see figure 2.1).

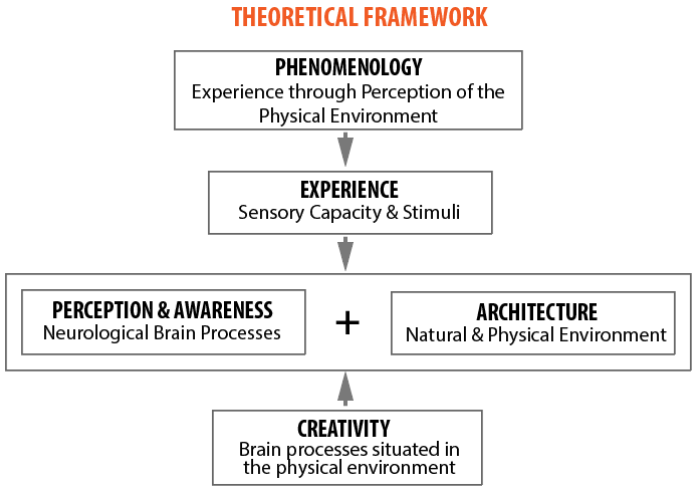


Figure 2.1 Main Themes in the Theoretical Framework (Private Study, 2019)

The theoretical framework presents an understanding of phenomenology in architecture and its connection to subjective perception of the environment. Then, the process of human perception is further outlined, after which the role human sensory capability is highlighted in terms of the brain and the external environment. The interaction between the brain and the external environment (the

body and the building) is the place of stimulation and experience. Additionally, the role of the external environment is also explored as it relates to the brain in the process of creativity, in consideration to the production of creative content as is necessitated by the purpose of the facility.

This knowledge will then be used to support the design of a facility in which architectural and natural elements can be arranged in a way that produces an experience of space that is engaging, mentally stimulating and comfortable.

2.1 The Visual & Performing Arts Institute

The institute for the visual and performing arts is an educational facility which caters to both formal and informal education in the creative arts industries. The main aspects of the visual and performing arts function for the production of drama, music, dance and visual arts. It will function as a building which facilitates the furtherance of academic work through the study, formulation and production of creative content as an institute. Additionally, as a place where the content produced can be shared with the public through witnessing performances and viewing exhibitions. This institute provides a space for connecting with culture, entertainment and for the development of creative capabilities. Appropriate design of the institute can positively stimulate the creative potential and enhance the users experience of the building and all the content produced therein.

2.2 Considerations for the Visual and Performance Arts Institute

According to Strong (2010), below are various aspects of importance that must be considered when planning for the design of a Performing Arts Institute.

1. Transport

   This includes the proximity of transport, quality of transport, sufficient car-parking facilities and provision for delivery of equipment and supplies.

2. Visibility

   The facility should be easily recognized in its location, and through its architectural design and clear signage. Views into the building from the street allow transparency. The entrance/foyer should also be readily seen and

transparent so that the area allows activity within the building to be seen outside the building, to make it appear more accessible by the audience.

3. The Acoustic Environment

   This has a significant impact on building cost and should be considered at the beginning of the planning stage. A quiet environment is needed for auditoriums and one that is preferably not located close to external noise sources such as airports or major roads. The proximity to housing areas should also be considered to reduce ‘noise break-out’.

4. The Audience Catchment Area

   This area represents the different areas that can be sourced for consumers should be known this knowledge of where audience members will come from helps to create a coherent travel plan, also considering distances to from the theatre.

In addition to the aforementioned aspects, mentioned below are the functional aspects of the facility relative to activity-based needs (Strong, 2010).

1. Auditorium and Stage Area

   This is the heart of the theatre building where the main activity of experiencing and presenting performances take place. It can be a simple studio space or a multi-level auditorium. Seating is always arranged to view the stage and the stage is the platform where the performance is made. This relationship is crucial in determining the success of the space. A live performance is an interactive experience between the audience and the performers. There must be optimum arrangement of seating to ensure the audience hears and sees the performance, this arrangement can be fixed or flexible. There is need to integrate support systems of the theatre which the architecture, such as lighting, scenery handling equipment and sound systems. Auditorium acoustic requirement may vary depending on the auditorium and will influence its form and volume. There is a direct relationship between the volume of a room and its reverberation time. Approximate volume relative to the use important in the early stages of design, since it will affect the massing of the building and its cost.

2. Front of house

   The front of house contains the foyer/entrance facilities that provide for the needs of the audience and is open throughout the day. Building should be clearly laid out and legible, allowing a large number of people to be able to move easily through the sequence of activities. It is helpful to disperse bars and toilets around the building and near to different seating areas to avoid congestion and counter flows.

3. Backstage

   This is the special area for the performers and the technical team. It includes rehearsal rooms, dressing rooms and rooms for preparation and relaxation. It houses some technical equipment and costumes and other related to preparation of the setting. These activities are unseen by the public eye and their access routes in this area should not be accessible by members of the public. The size of dressing rooms and rehearsal rooms vary depending on the size of the auditorium and the size of each performance. They should be located close to the stage so that they are readily accessed during a production. Technical areas also need sufficient space for getting-in and off-loading. The size of stage equipment requirement sufficient access and storage.

4. Other Areas

   Areas to be used for other functions include those related to the administration of the facility. Spaces are needed for staff who work in the building, therefore they should be grouped together or located closer to their respective areas for efficiency. This area should be located in such a place where it is easily accessible from the main entrance and the back of the stage. There are also non-administrative areas that serve the facility such as meeting rooms, private hospitality rooms and restaurants that can be taken into consideration.

5. Studio and Gallery Areas

   This areas require sizeable spaces which can range from large to small depending on the amount of persons using the area. These spaces should be easily accessible to the users, and have higher ceilings in comparison to usual places. Areas for storage of materials and instruments are needed, and also

places for storing the content created. The space will also require a wash area that will be used for cleaning up workspaces and also personal cleanliness.

2.3 Theory of Phenomenology in Architecture

The Introduction to Architectural Theory conveys that phenomenology is originally a philosophical concept, which approaches the topic of human experience and structures of consciousness from a first-person perspective of the physical world (Mallgrave & Goodman, 2011). This point of view focuses on human experience, how we perceive and understand the environment. In literal terms, phenomenology describes the study of the "phenomena" of things as they appear in the subjective reality of our experiences. This area of study is very vital to the discipline of architecture, since the main focus of architecture is oriented towards planning for the built environment and the considerations for the users of the spaces designed. Therefore, a phenomenological view of architecture allows various perspectives on how the environment could be enhanced to achieve higher experiential qualities (Smith, 2013).

This view of the world has been established by early philosophers such as Martin Heidegger and Maurice Merleau-Ponty. The current discourse of Architectural Phenomenology has since been influenced by the architectural theorists and practitioner namely, Juhani Pallasmaa, Alberto Perez-Gomez and Steven Holl respectively. In the book Questions of Perception Phenomenology of Architecture – authored by the aforementioned – the ideas of phenomenology on which this thesis is based, are particularly concerned with the role of human sensitivity in subjective experience, perception and being in the world (Shirazi, 2012).

The phenomenological view of architectural design is deeply rooted in human consciousness and perception of the environment around us. These processes are made possible by the presence of the human sensory abilities. Phenomenology seeks to explain the world and to describe how it makes itself evident to human awareness through direct and sensorial experience. This view holds that a pre-conceptual experience rather than objectified quantification represents the real shape of the world and therefore, the world is immediately

experienced through our senses (Malnar & Vodvarka, 2004). This reality is expressed only through man's constant embodied interaction with the environment, which can only be experienced through all the sensory pathways. Through these senses an understanding of the world is constructed, the process is repetitive and is a constant feed of information which contributes to the stability and character of our reality.

2.4 Human Perception of the Physical Environment

Human beings spend all of their living moments in constant interaction with the physical environment, therefore, perception is a fixed feature of this interaction. Human perception is essentially processed sensations, in the end the perception and cognition create mental representations of the objective environment. The information is filtered and restructured, making it subjective, and people respond to their own image (perception) of the environment (Malnar & Vodvarka, 2004).

For this reason, experience is a fully embodied function, a body must be present in a particular space in order that sensations of that particular place and be felt and then a response produced. Perception is fundamentally an event of the entire organism, and is only possible through our embodiment in the world, in a given space, and the mind cannot operate outside of this construct (Mallgrave, 2010). There are different levels of which perception occurs and the awareness directed to the environment is based on these three levels of attention.

Speaking on the consciousness and experience in the perceptual environment Aron Gurswitch (2010), identified the three basic components of the noematic sphere or the perceptual field. These are hereby referred to as types of attention (as seen in figure 2.2), they are, the central theme (the focal point), the thematic field (a background) and marginal consciousness (peripheral perception). From these we see that "focal attention is not a prerequisite for perception; [and] most human perception is not achieved through focused attention" but rather, through a full embodied experience (Bader, 2015).

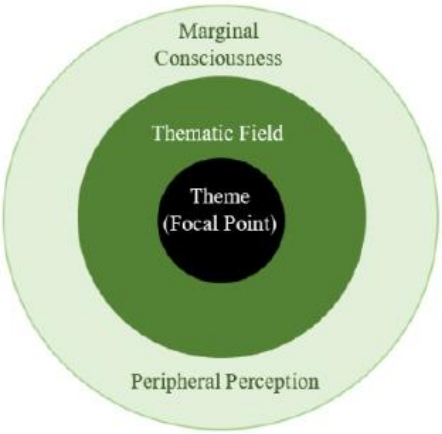


Figure 2.2 Types of Attention (Bader, 2015)

Gurwitsch (2010) further described this organization of the perceptual field and how it is attended to during experience. The idea is that the subject of focal attention also called the "theme", emerges from a "field", where the theme is the center of that field. Within this total field is the "thematic field" in which fits the context of theme, thus while the theme may remain the same, the thematic field is transitive. He also mentions the dependency or relationship between "theme" and "thematic field" thus, a "given theme cannot appear in just any context" and must be relevant to that context. Where this relevancy is lost, the item recedes into the "margin" of the field, and becomes irrelevant. Though items in marginal awareness may be irrelevant, they do still retain organizational qualities and since they are not "nothing", they may become thematic in later moments.

Bader (2015), in a study of the perception of architecture by every day users, used Gurwitsch' model to understand the users' interaction with the built environment. It was found that architecture is not seen as the focal point, but it is perceived in a "state of habitual distraction". This means that, in general, users are more focused on their daily aims and objectives (the use functional aspect of architecture), rather than paying full attention to the built environment.

Furthermore, our attention is usually jolted into an intentional focus if or unless there is need for conscious attention to a specific problem or thing. In the normal activity regarding our day to day use of the environment, individuals do not readily see a full image of an object inclusive of all it details. In fact, on many

occasions it is difficult to recall many details of an object if one was not deeply interested in it. Through this it is understood that usually we do not see a thing but information collected is used to make an impression of the thing itself (Rasmussen, 1962). Much of this is done through inference, where our mental constructs are based on the information grasped and generalizations are made (Malnar & Vodvarka, 2004), this idea that reflects why we are inclined to illusionary actions.

Through a full embodied experience, all the senses work together in creating a very integrated structure of reality. We therefore, do not experience reality in a partial and disjointed manner, but the environment is percieved holistically. The complex processing of the information collected allows it to be received and interpreted forming atmosphere that is felt before the individual is consciously aware of each element that make up the physical environment. Pallasmaa (2014), expounds on this idea, saying, that through the embodied experience “we grasp the atmosphere before we identify its details or understand it intellectually”. Therefore, little to no attention is specifically paid to actual architectural elements in the environment, but the intangible 'atmosphere' is understood as a whole. Pallasmaa also notes that “the judgement of environmental character is a complex multi-sensory fusion of countless factors which are immediately and synthetically grasped as an overall atmosphere, ambience, feeling or mood." This concept he refers to as “the sixth sense”; “our capacity to grasp qualitative atmospheric entities of complex environmental situations, without a detailed recording and evaluation of their parts and ingredients”.

Further he looks to the functions of the left and right sides of the brain and also other arts. Paintings, plays, even sculptures all have an atmosphere and music has great impact on our emotions and moods regardless of how little or how much we intellectually understand musical structures. Even when reading he says “the settings seem to be there ready for us to enter, as we move from one scene of the text to the next" and yet these settings are not perceived as still images”. Thus, our normal state of perception is not with precision as we may have believed, but our experiences are based on peripheral perception and anticipated vision with movement. We are constantly shifting between the types of attention as we move

through or environment, and for this reason it can be understood how the environment is perceived even while a user is preoccupied.

All the elements of the natural and physical environment are the sources from which this information is collected. This includes variables such as noise, light and temperature and also architectural elements such as walls, floor and other related structures which are subject to design manipulation. Though all architectural elements are not particularly recognized, they still play an integral role by influencing the formation of our perception of the environment, thereby influencing our feelings and responses in daily life. Beyond the elements of the physical environment which influence perception, there are also other individual subjective aspects which influence how we perceive the environment (Kopec, 2018).

2.5 Non-Physical Influences on Perception

Perception is also influenced by factors such as expectations, memories and previous knowledge. Perception and thought are all associative in nature, meaning that we add our own ideas and thoughts from previous experiences to make associations with what we perceive in the present (Mallgrave, 2010). Here we see that emotional responses can be produced through experiences based on various elements in the given space. This idea is interpreted through the depths of the varying cultural values of human beings. A pattern of visual experiences during the life of an individual can become so familiar that it eventually influences the individual's perceptions of objects, even un a subconscious level (Malnar & Vodvarka, 2004). Besides holistic cultural values and behaviors, persons also interpret the environment based on their individual knowledge and previous experience and personalities. The individual directs perceptual activities when they choose where to place their attention whether consciously or unconsciously after which the current situation is related to previously experienced contexts. Perception as whole is essential for the experience of space and our understanding of space is mediated by our experiences and our cultural values (Kopec, 2018).

This individualistic and cultural influence on human perception is evident when observing ideals of beauty. The understanding of beauty is relative to customs, since beauty is not a quality of an object itself but its judgement is subject

to the perception of the person beholding the object (Mallgrave, 2010). Thus, it is possible that these standards can be unlearnt or refined throughout the lifetime of an individual as information from different experiences is continuously being added to their knowledge base.

2.6 Sensory Experience

Given the nature of architecture and the need for users, it is seen that architecture itself is essentially an experience through the integration of the senses. The body itself and the sensory capacity are not separate and are design to work with each other. Though architecture is primarily experienced and viewed in the visual field, of equal importance is the realization that all other senses play an important role in how we perceive, experience and make sense of our world. The sensory-motor capacity of the human body is the incredible system which collects and interprets information about the environment and, therefore, we understand that an experience is created when this information is processed by the senses. With the information collected the subconscious creates patterns in our sensory experiences and in associations we make. Further, while movement through the world creates successive associations, the most frequent associations become too regular and are no longer consciously discerned (Malnar & Vodvarka, 2004).

Making sense of the environment involves a complexity of sensations, Pallasmaa (2005), highlights some specificities of how each sense receives and processes information. This kind of information is necessary to understanding how to bring life to our intentions for experience in the built environment because our senses do not work independently of each other but in a harmony reminiscent of the embodied cycles of the natural environment. We understand that the complexity of our perception and experience of atmosphere requires a being in motion in comparison to a single moment of perception. Therefore, to isolate one of these or make one more dominant than the other can change the experience and our perception of the world around us. It has also been highlighted that the nature of our experiences has been altered through a visually dominant culture. Pallasmaa (2005) expresses his ideas about the hegemony of the eye in popular culture and also in architecture. He reflects on the way “the current industrial mass production

of visual imagery tends to alienate vision from emotional involvement and identification, and to turn imagery into a mesmerizing flow without focus or participation" (Pallasmaa, 2005). Therefore, instead of truly meaningful experiences, architecture has come to be measured based on marketing capacity, in order to achieve high rates of consumption.

However, an architecture that takes into consideration all of the senses can greatly enhance the experiential quality of the building, the building itself, with all of it elements and characteristics is the medium for experience (Rasmussen, 1962). The building therefore communicates its nature through sensory experience and the responses associated with the sensory information of the environment are of different natures. Sensory experience is possible because of the capabilities of the responsible parts of the human brain where the information of the environment is received and processed as discussed below.

1. Neurobiological Function

The brain is made up of many neurons fired by electrical signals which are responsible for continuously forming/ manipulating neural pathways/connections throughout life. This communication occurs between synapses at the end of each neuron through which information is transmitted. The brain is generally made up of the left and right hemispheres (see figure 2.3)

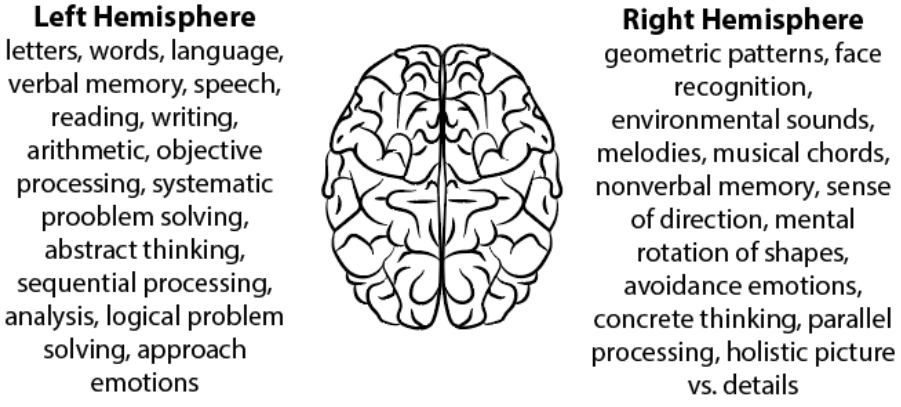


Figure 2.3 Left and Right Hemispheres of the Brain (Carson, 2010)

These two hemispheres are always in constant communication with each other and are responsible for different types of information. The cerebral cortex is

the thin layer of cells covering the entire brain and is divided into four lobes which are related to different functional systems. The information received from the external environment is sent via electrical pulses to various areas of the brain to make connections that interpret and add meaning in order to formulate an appropriate response. The areas of the brain responsible for receiving and processing sensory information are mainly located towards to rear, in the parietal, occipital and temporal lobes (see figure 2.4) (Kopec, 2018). Together these areas and processes form the infrastructure of the sensory systems used by man.

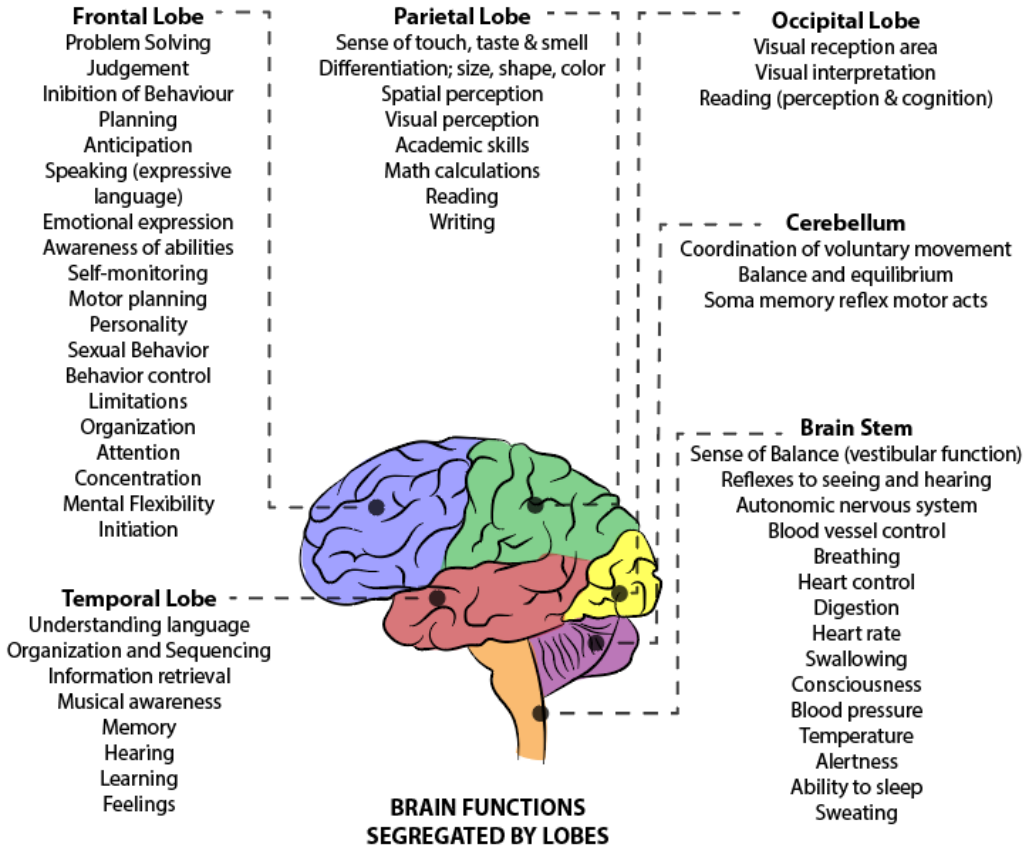


Figure 2.4 Brain Functions Segregated by Lobes (Kopec, 2018)

2. The Sensory Systems

All the sensations gathered from the environment are combined into a holistic and intricate experience which can only be valued through human embodiment. Here the five senses come into play to grasp the information from the environment. Of these senses, sight, smell, taste, touch and hearing, the least

common in the architectural word is taste, unless the function of the building itself dictates that it is present. These five senses can be represented by several bodily systems namely, the visual system, auditory system, taste-smell system, the basic orienting system and the haptic system as discussed below (Malnar & Vodvarka, 2004). These systems are integrated and no characteristic by itself produces a given reaction but, the patterns of the characteristics present a larger more comprehensive experience.

a. The Haptic System

   This refers to the sense of touch including temperature, pain and pressure also kinesthesia which is body sensation and muscle movement. Touch enables us to feel the world, and locate the space we occupy. Sensory receptors in the skin gather information about texture, weight, density and temperature of objects which is sent to the parietal lobe for processing interpretation and meaning (Kopec, 2018). Within this information, some sensations are pleasurable unlike others, for example, the difference between a polished surface and rough, rocky surface. The tactile sense of the hands and skin allows us to experience the passing of time and duration of objects and places we encounter. Gravity and density are also mediated through our haptic sensibility, it is the sense that most closely related to intimacy and comfort (Pallasmaa, 2005) and therefore can be very stimulating.

b. The Visual System

   This system is responsible for the sense of sight is one of the most important passageways for grasping a considerably large amount of information from the environment. The eyes allow us to gather information from the external environment, enabling us the see forms, shapes, light and shadow. These are related to the perception of levels of illumination and depth perception. Information from visual systems are recorded in the visual cortex of the occipital lobe and processed for interpretation/meaning in other areas such as the parietal and temporal lobes (Kopec, 2018). Visual systems provide information for mapping, directing and therefore how and where to move.

It reinforces other senses and it is the main medium through which architecture is perceived (Pallasmaa, , 2005).

c. The Auditory System

This system points out what is approaching before it is brought in and out of sight. After sound waves are transmitted through the ear to the auditory cortex, further interpretation and meaning is added to information processed in the frontal and parietal lobes (Kopec, 2018). Sound is temporal in nature and without it visual perception is quite different and less informative. Sounds can bring new understanding to the environment because they penetrate an individual's focus and solicits an emotional response. Sound is essential for the anticipation, experience and remembering of places. Moreover, an environment without sound appears unreal, without flow or rhythm and can even be thought of as frightening. If a sound is displeasing it is categorized as noise, sounds can also be unconsciously heard, consciously listened to or very familiar sound (Malnar & Vodvarka, 2004).

d. Sense of Taste and Smell

The sense of taste is the least used or not used at all for gathering information of the external environment, unlike that of smell. Odor is associated with smell and is another aspect that also gives character to objects and spaces making them easy to remember. Information gathered through taste and smell are sent for processing in the parietal lobes of the brain. (Kopec, 2018) Pleasant fragrances are associated with stress relief, recall of pleasant memories, increase alertness on and performance on cognitive tasks. Smells remembered after a day tend to last longer in memory, easier if it is simple in character and familiar. For this reason, scents are associated with memory, and certain odors make us remember things we might have thought forgotten. Pleasant odors reduce stress in general, some such as peppermints and lemon may increase alertness and energy, lavender reduces tension (Malnar & Vodvarka, 2004).

2.7 Sensory Stimuli

The senses allow us to capture a moment while we move through a space during which some characteristics of the space may hold our attention. The environment holds all the sensory information responsible for various intensities of mental stimulation. The intensity of the stimulation can be controlled by manipulating the various amounts and locations of the stimuli to attract attention to certain spaces or to reduce and diffuse attention in others. The appropriate level of stimulation for the given situation must be considered since control of stimulus in the environment can possibly result in either over/under stimulation once the threshold of stimulation is unattained or is beyond the maximum for the user (Kopec, 2018). In particular, sudden variations in the visual field arouse the senses and bring 'astonishment', which qualifies as a stimulating characteristic (Mallgrave, 2010). Other elements which are associated with sensory capabilities characteristic of providing stimulation by attracting attention, are discussed below.

1. Light and Shadow

   These are perceived with the eye, the main element in the visual realm that allows us to understand our surroundings and has the ability to stimulate our awareness and bring the environment in focus is light. Light touches materials and then touches our eyes, this combined with shadows create edges and depth. These two factors bring into focus the architectural situation and contribute to the individual's perception of atmosphere. Edge is mainly perceived by the transition of 'outside' and 'inside', yet without conscious awareness of the architectural element (the door) itself. "Edge is experienced when it signifies change, and is perceived in a pre-conceptual way through embodiment (Bader, 2015). While light produces contrast and shadow, color and texture. Light influences everything the eyes see and the what the senses feel (Holl, 1994) and without it there would be no context for architecture, it brings meaning to all other architectural elements.

2. Temperature and Climate

   are understood by the skin, it is the largest organ of the body and is one the main sources of haptic response and understanding of the characteristics and atmospheres of the environment. The skin can sense the difference in

textures through directed touch and the temperature variations of the atmosphere. In general, warmer temperatures are more relaxing, but can feel crowded, as opposed to cooler temperatures which are more refreshing (Augustin, 2009). Temperature influences our mood or behavior and the experience of a space, while certain intensities of temperature may be a source of stress or discomfort due to overstimulation, thermal characteristics of indoor climates can be a source of thermal delight (de Dear, 2014). This is described by Pallasmaa (2005) in the recollection of "the caressing sphere of warmth in a spot of sun," which turn into "experiences of space and place". Temperature is also responsible for creating a sense of intimacy related to comfort and its intensity is sought out depending on the climatic environment. In cold climates thermal relief is associated with "hearth". While in tropical climates thermal relief is provided by the shade of trees, which also make for intimate social spaces (de Dear, 2014).

3. Color and Texture

   These are other factors that play an important role in our perception and subsequently the experience of atmospheres. Though architecture is mostly concerned with form and spatial considerations, the characteristic of color brings life to the building. It tells a story about the character of the building, through its various characteristics such as matte, glossy and smooth and differences between reflected and projected colors (Holl, 1994). Color emphasizes forms and materials used in the building, it is also used to delineate divisions and can affect the mood as in nature.

   Color is also symbolic, as seen in signage used widely for traffic use, logos, uniforms and the like. Beyond this symbolism, color is connected to specific places, even occasions and special purposes. These are viewed differently depending on the situation, climate and culture. For example, the use of bright yellows, oranges and blue in the Mexican community is only experienced in a certain way because of the intensity of the sunlight and some building materials specific to that place (Holl, 1994). The same color variations would be experienced differently in another place.

Color can also help us to recognize variances in textures before making felt contact with objects. Sensations of are felt by touch or recognized by the eyes and associated with different feelings and moods. This is seen and felt in the different effects brought on through the surface of materials, for example stone and steel are associated with cold feelings while wood textures are more associated with comfort and warmth. The effect of textural quality brings life to materials and to the atmosphere of the space (Rasmussen, 1962).

4. Circulation and Movement

The embodiment of circulation and movement create a succession of many elements and views into a whole for a continued experience. Rhythm and harmony can also be associated with the experience received during active movement and circulation in the built environment. Movement in space is critical to understanding sensory experience, it develops as a perceptual process and images are created based on sequential experience, spaces between objects are active and vital (Malnar & Vodvarka, 2004). In terms of spatial constructs, this continuous sequential experience is related to a sense of order and attention that is felt in the coherent nature of a place. As humans we also have a preference for complexity in patterns neither high or low in information, but still intricate. Legibility is the ability to form a clear mental image of a space and recall it, while mystery suggests that there is the presence of more information if it is sought. Rhythm in architecture is a subtle factor, which many times goes unnoticed. This combined with harmony gives architecture a sense of continuity and even order and totality.

Rhythm expresses movement and is relevant to time, both rhythm and harmony is borrowed from other arts, music and dance. The experience of rhythm gives the experience of heightened energy, as can be seen in music. This experience is easily shared among people, easily moving from one person to the next as in a crowd. Again, this factor is perceived differently because it is influenced by cultural norms and traditions, where a group of people may receive pleasure from similar experiences. Rhythms in architecture are evident in historical periods and style, and even today in

the regional architecture of various places. Rhythm brings sense of comfort and clarity, it removes tension and mystery from the atmosphere (Rasmussen, 1962).

5. Natural Elements

   These include nature and natural environments which are capable of creating stimulations to the mental faculties and bringing meaning to architecture. The natural world presents all of these experiences in its landscape. Human beings experience satisfaction with landscapes when they express the fulfillment of biological needs., there is a positive relationship between nature in the surroundings and strength of societal interactions. Because the nature of these factors is to influence the perception and experience of the environment, they are also used when designing creative and stimulating environments. Water is described by Steven Holl as "a phenomenal lens with powers of reflection, spatial reversal, refraction and transformation of rays of light". This phenomenon also uses an interesting interplay of light and colors to produce stimulating scenes (Holl, 1994). Water as a non-visual element also introduces sound for example the gurgling of a stream of the flow of a cascade of water. Additionally, water is associated with health and purity and it provides feelings of freshness to the atmosphere.

2.8 Creativity

The creative potential of individuals to some degree is also influenced by the stimuli afforded by the external environment. Creativity is defined as the ability to "transcend traditional ideas, rules, patterns, relationships or the like, and to create meaningful new ideas, forms, methods, interpretations, etc." (Dictionary.com, 2018) and also includes "originality, progressiveness or imagination". Many processes involving various parts of the brain work together to facilitate the creative process. Studies of the brain relating to cognition have highlighted the regions of the brain active during the creative process. The creative process begins with an accumulation of knowledge, incubation of that knowledge, the recognition of a solution to a problem and the final transformation of the vision into a useful product

(Evans & McCoy, 2010). The processes required for each stage of the creative process are activated in relation to the associated area of function and interpretation in the brain. The two general states of creative thought are identified as divergent and convergent thinking which equate to Plowright's exploratory and evaluative thinking (Plowright, 2014).

Divergent thought includes having a receptive state of mind, active imagination and the ability to make connections between loosely associated ideas. Thought related to an attraction to novelty, delayed judgement and cognitive disinhibition induce divergent thinking. During divergent thought, neurotransmitters in the prefrontal lobes – responsible for analysis and judgement – are less active, and imaging shows more activity in the right hemisphere. Studies show that highly creative people slip easily into low beta wave states in comparison to less creative people. This is as a result of low beta wave activity which refer to alert and active thought in the prefrontal cortex (see figure 2.5) (Carson, 2010).

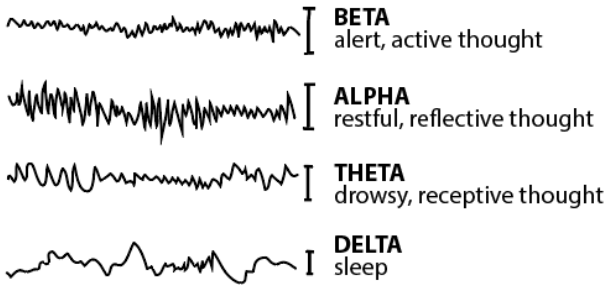


Figure 2.5 Types of Brain Waves (Carson, 2010)

Meanwhile in the temporal, occipital and parietal lobes to the rear of the cortex show a rise of alpha wave activity which is consistent with relaxed or reflective thought. This state of mind allows loosely associative thoughts to flow without inhibitions of the prefrontal cortex. Receptive brain states are also linked to the dopamine reward system which are activated by the fulfilment of curiosity and attraction to novelty (Carson, 2010). The areas of the mostly responsible for divergent thought are thought associated with processing perceptual information, here the external environment plays an integral role in stimulating the creative hotspots of the brain. Making connections in divergent thinking also requires a level

of deliberate thought to be combined with spontaneity. Here a balance is achieved with some activity in the right prefrontal cortex which is responsible for broad attentional focus (Carson, 2010).

Convergent thinking requires conscious control of thought processes, sequential processing, planning and decision making. When attention is focused toward a specific deliberate outcome the beta wave activity areas of the left prefrontal cortex are highly active and alpha wave activity is reduced. This state of the brain is mirrored by the divergent thought process. The focused attention makes it possible to concentrate on details, unlike defocused attention which allows peripheral information to enter the cognitive workspace (Carson, 2010).

These creative processes are also influenced by the emotions and feelings of the individual which can be influenced by the external environment. It was found that persons are more inclined to be creative when in a pleasant mood. During creative work, ongoing positive feedback from the environment results in mild but consistent activation of the reward center which increases motivation. Thus, allowing an individual to focus completely on the task at hand, losing their sense of self and time (Carson, 2010).

Much of the inspiration for creativity is a result of a mental state where attention is 'defocused', thought is associative and a large number of mental representations are activated at the same time. This means an individual does not limit attention to only a few elements but associative thoughts and thought layers are relationships that exist between these elements of cognition. Therefore, it is seen that the building blocks of the overall creative process which occurs in the right (divergence) and left (convergence) brain hemispheres are marked by defocused attention, associative thinking and the simultaneous generation of mental representations (Kaufman, Kornilov, Bristol, Tan, & Grigorenko, 2010).

Dreaming has also been increasingly associated with creativity and the creative process, studies recognize that both processes are cognitive and based on self-expression, perception and experience. While the intangibility of the dream eventually fades away, there are recorded instances which positively correlate dream incorporation into waking life with individual's creative involvement (Pagel & Kwiatkowski, 2003). Dreams are discussed as having a functional role in the

creative process, most commonly related to the processes of incubation or illumination. The role of the dream is also extended to encompass the possible integration of reality into memory. Other noted functions suggest dreaming as a source of artistic creations, creative solutions for problem solving through metaphorical information, which enhance overall creativity (Pagel & Kwiatkowski, 2003; Schiavone & Villasalero, 2013). This is further validated by studies which suggest cognitive processing in regions of the frontal and prefrontal cortex associated with creative processes while sleeping. In particular, the frequency of brain wave activity during NREM and REM sleep, the latter of which is known to be related to dreaming (Cai, Mednick, Harrison, Kanady, & Mednick, 2009; Drago, et al., 2011). Schiavone & Villasalero (2013) further emphasize intrinsic motivation and emotion, as they are likely to stimulate creative responses from dreaming, to be used in real world situations.

2.10 Creativity and the Physical Environment

Among the many influences on the lives of man experienced from day to day, the physical environment is one aspect that is a large part of the external environment. The nature of this environment influences our experiences day to day, whether negatively or positively. The quality of the physical environment can also be tailored to be a source of stimulation that can support the development of the creative ability which comes through the interaction between the user and the environment. According to Bagheri & AliNouri (2015), the physical environment is a part of the extrinsic qualities that influence creativity, unlike intrinsic qualities such as personality. The architecture of the educational environment is a factor among the social and cultural context which can potentially be a stimulus for learning or a hindrance. The quality of the environment supports all the behavior that occurs in its spaces. Unusual aesthetic spaces, beautiful and pleasing are very efficient in stimulating creativity and it is preferable that the environment is readable with spatial variation which contributes to the element of mystery (Bagheri & AliNouri, 2015).

Studies on physical characteristics of the environment show that various environmental cues impact the users and have been highlighted for consideration

when designing an environment stimulating to the users. For example, environments high in perceived creativity potential were most frequently visually interesting and individuals who are confined to featureless environments are more likely to suffer intellectually yet their full potential can be achieved when the environment contributes a wide range of experiences (Evans & McCoy, 2010). The quality of space is reflected by the characteristics of the physical environment including, the treatment of color, the integration of nature, natural lighting, the presence of sounds and the organization and size of the spaces provided.

1. Color

   Color attracts the attention, it is said to be able to reduce anxiety, apprehension and promote a sense of well-being. Loud colors may encourage big ideas to appear, color also affects the mood and brings a certain character to a space (Bagheri & AliNouri, 2015). Color may influence the process of thinking depending on the nature of the task at hand. According to Zhu (2014) the color blue is better for highly creative tasks because it is associated with the ocean and the sky, creating a mindset that is open-minded and risk-taking. While, red is better for more detail oriented tasks because it is associated with, ambulance, emergency and stops signs which reflect danger and mistakes. Therefore, red colors create a sense of avoidance, caution and vigilance.

2. Light

   Light is responsible for the changes in shadows, sunlight or artificial light play on various material surfaces and the combination of angles which show edge and depth provide perceptual stimuli to the brain (Carson, 2010). Bagheri & AliNouri (2015) also mention that natural lighting is widely available and its presence is associated with good performance, because light also affects the natural rhythms of human biology. However, Zhu disagrees, saying that studies have shown that a well lit room creates feelings of being observed and judged by others, this causes the individual to regulate themselves more, whereas a dim lit room relates that people can't see you clearly. This physical disinhibition also influences mental disinhibition, making it more likely to open up to new things and create more distant associations (Tian, 2014).

3. Pleasant sounds

   Sounds are found in variations in foreground and background sounds, for example the different sounds made by the contact of raindrops on different kinds of materials that stimulate thought (Carson, 2010). Unpleasant or unexpected sounds could be considered noise. However, noise is not necessarily negative, moderate levels of noise approximately 70 to 80 decibel points actually facilitates creative thinking. Background noise makes people feel a little distracted from their focal task which allows the individual to be less tense allowing the mind to wander and facilitating creative thoughts (Tian, 2014).

4. Natural elements

   Nature and natural materials are widely used in restorative environments, and also provide a source of sensory stimuli which supports the creative process (Evans & McCoy, 2010). Nature is also a source of inspiration for creative ideas and it assists with mental clarity. Proximity to nature reduces stress, increases efficiency and enhances the emotional relationships between human beings (Bagheri & AliNouri, 2015).

5. Coherence and legibility

   The arrangement and organization of spaces should also reflect the quality of space that supports the creative ability holds various characteristics. The spaces must be free and flexible, such that individuals feel the desire to express themselves and be open to new experiences. Coherence and legibility allow the user to feel comfortable and be able to understand the environment. Challenging environments are represented by intricacies and complexities which makes the character of the building more interesting (Evans & McCoy, 2010). Spaces should enhance communication and social interaction because with social engagement ideas are readily formed and developed throughout the thinking process of the entire group. This collaborative environment invites synergy, allowing persons to work together and have mutual influence on each other's ideas (Bagheri & AliNouri, 2015).

6. Temperature

   In addition to organizational and formal attributes of the quality of space, the internal thermal environment also has a potential effect on the mood and

behavior of persons in a space. According to Augustin (2009), it was found that between forty and seventy percent relative humidity gives both teachers and students a comfortable environment, operable windows with winds circulating around the room provide a generally more pleasing learning environment. Overstimulation in thermal levels can be a cause for discomfort and stress, while slightly warmer temperatures are relaxing and can encourage social interactions.

7. Size

   The size of a space and how its perceived can also influence the way in which tasks are handled in that space. Research in environmental psychology explores how certain configurations of physical environments can create certain psychological states or ideas which can then influence later information processing. It was found that larger physical spaces encourage divergent thinking, because they represent openness, free movement and exploration. This allows persons to relax their focus of attention from more distinctive to distant and varied associations, while, small and contained spaces can evoke feelings of confinement and restrictedness (Chan, Nokes-Malach, & Timothy, 2016).

From the information revealed in the theoretical framework, it can be seen that the external environment is filled with stimuli which the human brain uses to perceive and experience the built environment. Additionally, studies exist which support the fact that these stimuli can also have a potentially positive effect on the creative process of the human brain. Therefore, this information can be combined to derive aspects which influence the design for a building for the creative arts industry, with consideration to users of the institute and the public. The aspects listed below which have been derived from the theoretical framework, combine physical characteristics of the external environment which affect user experience and creativity.

1. *Circulation*

   considers the main pathways of movement in, out and around the building to promote the smooth flow of people and help to identify points of interest where persons can interact with features of the building. This encourages a pleasant experience, easy wayfinding and is related to visual and motor systems. Besides

the functional necessity of access and mobility, the pathways allow for an experience in spatiality derived from movement. This haptic dimension can also facilitate user experience through interaction with the building.

2. *Use of Space*

   is important for ordering the experience of the building in relationship to the passage of time while people move throughout the building and utilize its various functions. It can control the social construct of building by creating a barrier/access between private/public spaces or outdoor/indoor spaces which also has a major effect on how the users feel about the character of the building. This returns attention to user experience and is not exclusive to functionality.

3. *Massing and Form*

   express the general character of the building's envelope and its overall appearance and highlights its edges and depth. The forms used to mass the building communicates to the users its use and through the external features of the façade interest or curiosity is intensified. This is based on visual stimulation through the holistic view of the object.

4. *Color and Texture*

   are elements used to stimulate visual receptors in the eyes, to enhance experiences bringing attention to particular spaces. Texture also integrates sensations of touch and feeling in the experience of the building.

5. *Light and Shadow*,

   particularly the interplay of light and shadow are responsible for perception illumination, color and the perception of depth. It allows the users to recognize the passing of time and brings life to materials of varying textures. This is directly related to visual perception and understanding the spatial character of the environment, and bringing life to color.

6. *Use of natural environment*

   involves the integration of nature with the design to provide background sounds or visual cues which also stimulate and experiences. The sense of smell can also be integrated, for example through the freshness of water, the smell of wet grass or blooming flowers.

2.10 Precedent Study

In the design of the building for Visual and Performing Arts Institute, the two functions of education for students and entertainment for visitors is combined into a single a facility. For this reason, among the buildings to be studied, there will be buildings individual to their specified purpose (for example, the Almonte Theatre, Agora Theatre) as "theatre buildings" highlighted by the brown color. The buildings whose functions tend to academia (for example, the Clark Art Institute, the City of Arts & the Kennedy Center for Theatre and Studio Arts) are referred to as "institutional buildings" and highlighted by the red.

The framework for the precedent study begins with an introduction of the buildings to be studied, along with general information regarding each project. Each building is then studied categorically, based on the aspects derived from the previous discussions concerning physical attributes which influence the experience of the built environment in the previous chapter. Notwithstanding the conceptual starting point (if any), these aspects are as follows.

1. Circulation
2. Use of Space
3. Massing & Form
4. Use of Color & Texture
5. Use of Light & Shadow
6. Use of the Natural Environment

Subsequently, an analysis of these features is done through comparisons of similarities and differences in each design relative to their functions. The patterns and possible principles derived from the study are then highlighted in the final chapters with consideration to possible outcomes for the proposed design. The framework for the study of selected precedents is represented in figure 2.6, as shown below. Where the first two buildings in the image below represent cultural facilities catering to productions for the general public, while the remainders represent the buildings with institutional and academic functions.

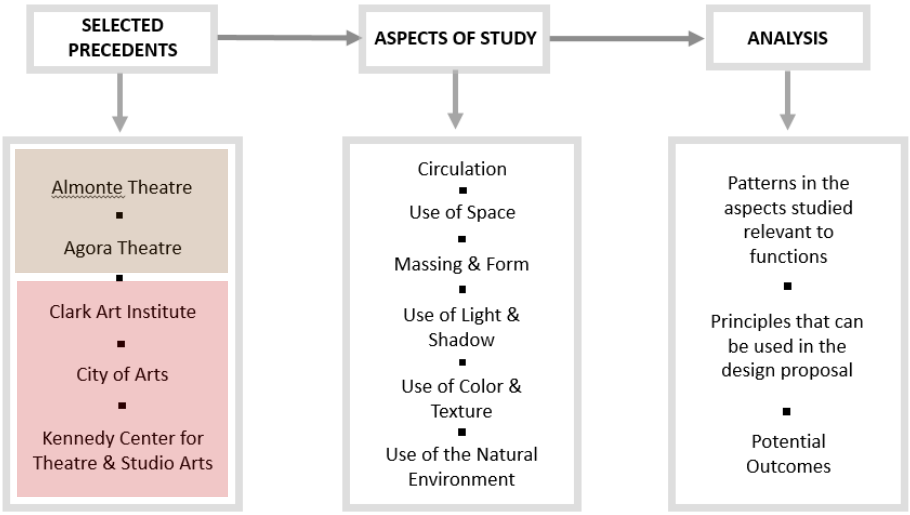


Figure 2.6 Framework of the Precedent Study (Private Study, 2019)

1. Almonte Theatre, Spain

Figure 2.7 Almonte Theatre, Spain (Archdaily, 2011)

The Almonte theatre is located in Hueva, Spain on the site of an old winery, which is a main area in the town. The greatest challenge during the design stage was being able to integrate the new establishment with the existing traditional buildings, giving the design proposal the need to be culturally sensitive (Yin, 2013). Project information is as follows:

a. Building Type: Theatre
b. Project Year: 2010
c. Surface Area: 3265 m2
d. Architect: Donaire Arquitectos

2. Clark Art Institute, USA

Figure 2.8 Clark Art Institute, USA (Frearson, 2014)

The Clark Art Institute is a part of a set of campus facilities geared towards development and enhancement of the academic programs, visitor experience and circulation (Frearson, 2014). Project information is as follows:

a. Building Type: Visual Arts Center (Extension)
b. Project Year: 2014
c. Surface Area: 97700 square feet
d. Architects: Gensler, Reed Hilderbrand Landscape Architecture, Selldorf Architects, Tadao Ando Architect & Associates.

3. Agora Theatre, Netherlands

Figure 2.9 Agora Theatre, Netherlands (Archdaily, 2011)

The Agora theatre is located in Lelystad, The Netherlands. The focus of the design was to revive its location in the town center through the creation of a world of artifice and enchantment. The theatre presents a kaleidoscopic experience of color and form which exploits the performance element of the theatre with the need to communicate with users (Yin, 2013). Project information is as follows:

a. Building Type: Theatre
b. Project Year: 2007
c. Surface Area: 2925 m2
d. Architect: Ben van Berkel, UNStudio in collaboration with B+M, Den Haag

4. City of Arts, Argentina

Figure 2.10 City of Arts, Argentina (Archdaily, 2010)

The City of Arts is located in Cordoba Province, Argentina. The building functions as studio and living space for visiting individuals, to study, teach and live for varying periods of time. This way each artist has a private space to develop their art and share experience with students (Archdaily, 2010). Project information is as follows:

a. Building Type: Visual Arts Center
b. Project Year: 2007
c. Surface Area: 950 m2
d. Architect: Lucio Morini

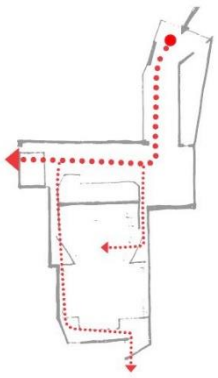
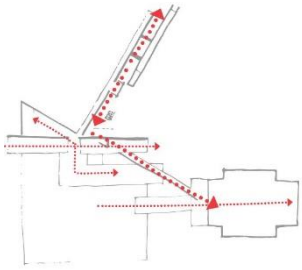
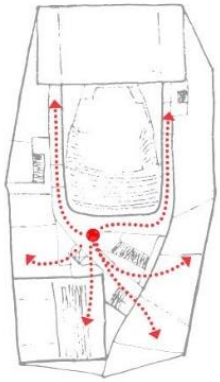
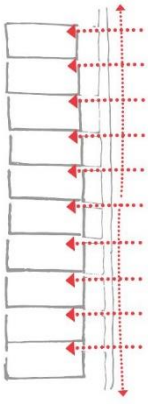
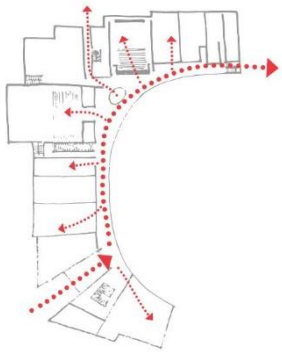
5. Kennedy Center for Theatre and Studio Arts, USA

Figure 2.11 Kennedy Center for Theatre and Studio Arts, USA (MachadoSilvetti, 2017)

The Kennedy Center for Theatre and Studio Arts is located in Clinton, United States of America. The Center is one of a few buildings dedicated to the arts at the Hamilton College (MachadoSilvetti, 2017). Project information is as follows:

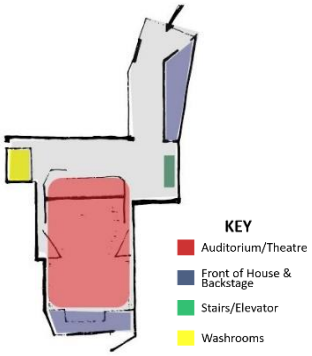
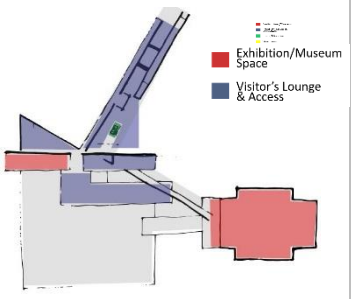
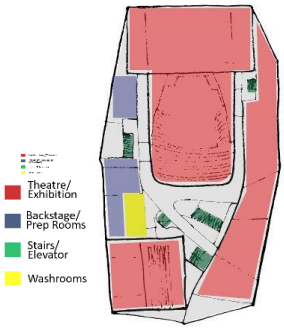
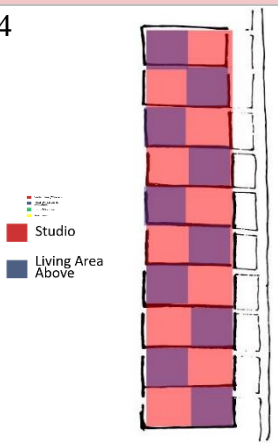
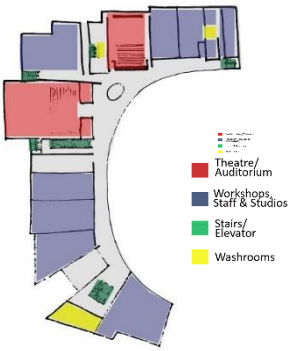
a. Building Type: Visual Arts Center
b. Project Year: 2014
c. Surface Area: 89000 sf
d. Architect: Rodolfo Machado (Machado and Silvetti Associates)
e. Project Director: Edwin Goodell, AIA

Table 2.1 Table Showing Circulation in Precedents

Fig 2.12 Theatre Almonte, Spain (Private Study, 2019)	Fig 2.13 Clark Art Institute, USA (Private Study, 2019)	Fig 2.14 Agora Theatre Netherlands (Private Study, 2019)
1  Linear circulation to the perimeter of the two adjoining rectangular blocks.	2  Similar to No.1 but the path intersects at a 45degree angle to the general form of the main building increasing the complexity and interest of movement in the building.	3  Circulation is central to the building and all activities branch outward from that point, making it very functional for direct access.
Fig 2.15 City of Arts, Argentina (Private Study, 2019)	**Fig 2.16 Kennedy Center for Theatre & Studio Arts, USA (Private Study, 2019)**	**Conclusion**
4  Access is individualized, so each studio maintains singular access and functionality of the arrangement is high.	5  The curvilinear path forms the main circulation belt, from which other functions can be accessed. Allows interesting views to the natural outdoor environment while fulfilling the functional needs of the building.	An intersecting linear pattern encourages a degree of complexity that can be a source of stimulation and mystery. The centrally focused circulation simplifies access to every area. Curvilinear circulation allows some interest and makes it easier to place functions along the access path which my need to be further away from each other. Individualized access makes it easier to directly enter various parts of the building, or restrict access if necessary.

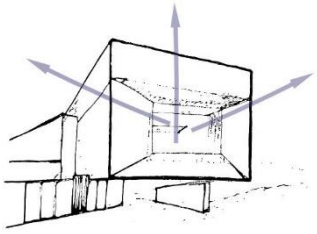
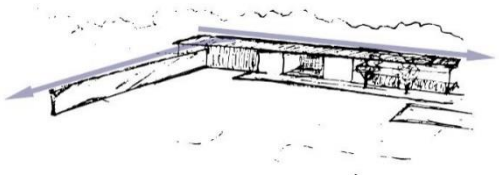
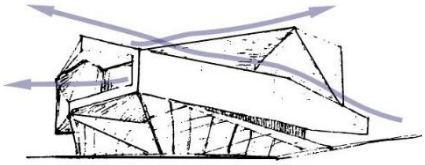
Source: Private Study, 2019

Table 2.2 Table Showing Use of Space

Fig 2.17 Theatre Almonte, Spain (Private Study, 2019)	Fig 2.18 Clark Art Institute, USA (Private Study, 2019)	Fig 2.19 Agora Theatre, Netherlands (Private Study, 2019)
1  The main function area is after some supporting functions, washroom is located close by the public area.	2  The public area is located to front and provides a level of engagement and public support areas before reaching the main functional area.	3  The main function areas are on the outer side of the building, controlling the flow of people and keeping public use central.
Fig 2.20 City of Arts, Argentina (Private Study, 2019)	**Fig 2.21 Kennedy Center for Theatre & Studio Arts, USA (Private Study, 2019)**	**Conclusion**
4  Functions are on split levels, with the main studio and reception area to the first level, the second level is dedicated to private living space.	5  Functions are arranged so that they do not interrupt each other. Workshops shops are located below to facilitate access and reduce noise.	Use of space is based on the needs of activities, if noise is present, studio spaces are distanced. Circulation paths also allow help to control the flow of people so that important functions are easily accessible. Functions are located based on the relationship with others.

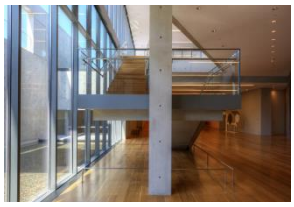
Source: Private Study, 2019

Table 2.3 Table Showing Massing & Form

Fig 2.22 Theatre Almonte, Spain (Private Study, 2019)	Fig 2.23 Clark Art Institute, USA (Private Study, 2019)
1  The form emphasizes the monumentality of the building, raising it above the level of the viewer. Therefore, the entrance is very visible and pronounced.	2  The horizontality of the building is pronounced with a long flat roof and long rectangular walls that seem to frame the building & make it appear to be flat.
Fig 2.24 Agora Theatre, Netherlands (Private Study, 2019)	**Fig 2.25 City of Arts, Argentina (Private Study, 2019)**
3  Mass of the building is wrapped and fractal in form, this increases the heaviness and monumentality of the building, creating protruding areas gives the building more spread along all axes.	4  The horizontality of the building is pronounced, considering that the functions and access are private the building is stretched along the plain.
Conclusion	**Fig 2.26 Kennedy Center for Theatre & Performing Arts, USA (Private Study, 2019)**
Verticality and horizontality increase the iconic impression of the building. But the wrapped angular façade of the building produces an interesting dynamic to be in its presence, it grabs the interest of the users and directly suggests it flamboyant character, this spikes the curiosity of the user.	5  While the horizontality is pronounced with a sweeping curvilinear form the two towers add some verticality to the building.

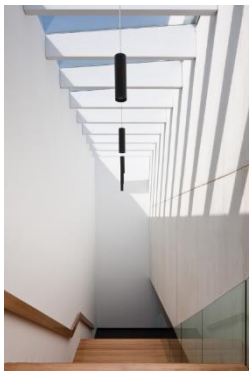
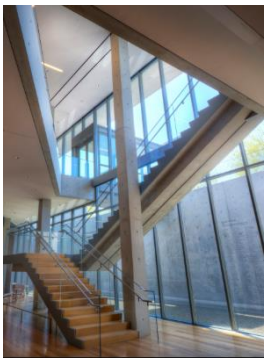
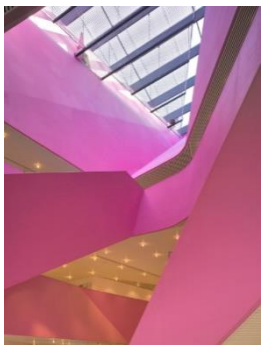
Source: Private Study, 2019

Table 2.4 Table Showing Use of Color & Texture

Fig 2.27 Theatre Almonte, Spain (Archdaily, 2011)	Fig 2.28 Clark Art Institute, USA (Frearson, 2014)	Fig 2.29 Agora Theatre, Netherlands (Archdaily, 2011)
1  The color is plain and is used to blend into the context, it makes the building seem light even though the scale is pronounced at the entrance.	2  Wood and concrete are the main materials used, therefore making the building's atmosphere seem natural.	3  Color is used not as a highlighting factor to drawn points of attention, but as the whole character of the building, drawing in the user.
Fig 2.30 City of Arts, Argentina (Archdaily, 2010)	**Fig 2.31 Kennedy Center for Theatre & Studio Arts, USA (MachadoSilvetti, 2017)**	**Conclusion**
4  A different color is used for each studio, highlighting the individuality of the building. The textured windows also diffuse the incoming light.	5  Brick and concrete are mainly used to bring natural earthen tones to the building, blending with the environment and providing a unique contrasting appearance.	The colors and textures used say a lot about the building, it can be used to create context with other building, and also to bring interest to various points of the building. Color could be main factor of the whole building creating an atmosphere quite different from the natural feel of the world.

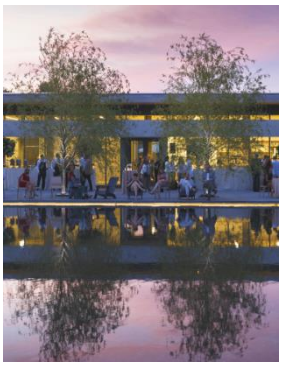
Source: Private Study, 2019

Table 2.5 Table Showing Use of Light & Shadow

Fig 2.32 Theatre Almonte, Spain (Archdaily, 2011)	Fig 2.33 Clark Art Institute, USA (Frearson, 2014)	Fig 2.34 Agora Theatre, Netherlands (Archdaily, 2011)
1  Natural light is used to guide the users to various parts of the building. It intensifies the character of the building when it interacts with the wood and off-white walls.	2  Large glass windows encourage the entrance of light, which is diffused along the floor and walls connected with the wood texture and intensifying the natural feel of the building.	3  The pink colors are intensified with the light coming through atriums, the shades also change depending on the time of the day and the amount of light.
Fig 2.35 City of Arts, Argentina (Archdaily, 2010)	Fig 2.36 Kennedy Center for Theatre & Studio Arts, USA (MachadoSilvetti, 2017)	Conclusion
4  Light is reflected off of the colored walls located throughout the building, the entire studio space is filled with incoming natural light and artificial lights.	5  Natural light enters the building through the main circulation area and allows the entire corridor to be well lit throughout the day. Studios are allocated along this path.	Natural light combined with color and texture, greatly emphasizes the character of the buildings and gives the users unique experiences depending on how the elements are manipulated.

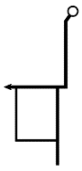
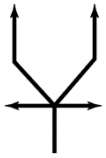
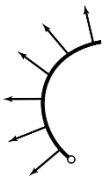
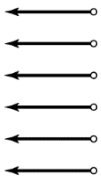
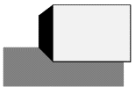
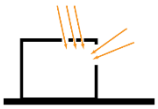
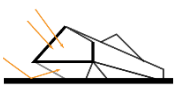
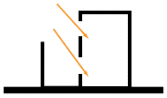
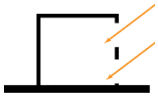
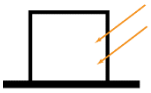
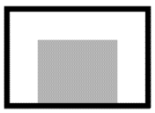
Source: Private Study, 2019

Table 2.6 Table Showing Use of the Natural Environment

Fig 2.37 Theatre Almonte, Spain (Archdaily, 2011)	Fig 2.38 Clark Art Institute, USA (Frearson, 2014)	Agora Theatre, Netherlands
1  Water is used to the main entrance of the building along with a few trees.	2  Around the public area a large body of water incorporated into the design, this brings a feeling of freshness to the atmosphere and creates unique interplays with light.	3
City of Arts, Argentina	Fig 2.39 Kennedy Center for Theatre & Studio Arts, USA (MachadoSilvetti, 2017)	Conclusion
4	5  The lake in the area is seen as a focal point, the whole building is faced toward the natural features of the environment. The windows along the main circulation increase the connection between inside and outside.	Water used in public spaces can encourage a fresh feeling and also allow persons to feel more relaxed. General views of nature also compliment the aesthetics of the building and encourage users to connect with the natural environment

Source: Private Study, 2019

Table 2.7 Table Showing Gap of Design and Possibilities

	Theatre Almonte, Spain	Agora Theatre, Netherlands	Clark Art Institute, USA	Kennedy Center for Theatre & Studio Arts, USA	City of Arts, Argentina
Circulation and Movement					
Use of Space Designated Arts Other Area					
Massing and Form					
Light and Shadow					
Color and Texture Color Intensity Building Perimeter					
Nature Water Feature Building					

Source: Private Study, 2019

From the precedents examined above, a few patterns and principles appear when key components and relationships have been analyzed. Below, these are explored in two general categories considerate of function; the theatre buildings (Theatre Almonte & Agora Theatre) designed for entertainment and the institutional buildings (Clark Art Institute, City of Arts, Kennedy Center for Theatre and Studio Arts) designed for academia.

1. The presence of theatre buildings

   The buildings particularly designed with auditoriums/theatres for the performing arts (Agora Theatre & Theatre Almonte) have a particularly salient presence on the ground. The external form of the Agora theatre is heavy and verticality is pronounced – by the sharpness of the angular form and vibrant orange/yellow colors used – enough to grab attention from a distance. Though the façade of Theatre Almonte is not particularly colorful, the white color is elegant and refined. The sharpness of the rectangular protrusion on the upper level is expressive of its presence on the site. The location of auditorium/theatres in the Kennedy Center institutional building is also easily seen from the exterior, here the verticality is also pronounced by the stony texture used on the façade. This is unlike the rest of the building used for studios, workshops and staff, where the color and texture used are subtle and provides an external contrast between those spaces.

2. Circulation systems in relation to spatial/functional arrangement

   The circulation in the theatre buildings, connects the functional spaces through a generally radial pattern, where the center is particularly used for main circulation and access in an open public space. This is also the same in the case of the Clark art institute, where the use of space is also radial, however, the system is not enclosed in a single building but the functions are disjointed and form separate spaces/buildings. To the center of the radial system is the open space for public use and access to other areas of the institute. The Kennedy institutional building utilizes a curvilinear main corridor towards one longitudinal side of the building, from which all functions are accessed. In the design of the city of art building, each studio is also directly accessed from the main path, which, in this case is not enclosed in the building envelope, but is

located outside of the building for adequate privacy. The single access pathway to one side allows full utilization of remaining space towards the other side section of the building, allowing adequate depth in each parallel room. Each room would also be able to visually connect to the areas outside of the building or invite natural light if the need is present, in both buildings.

3. Treatment of Light, Color and Texture

   The use of color, texture and light to the interior of the buildings vary with the functional requirements of the spaces within those buildings. In the two theatre buildings studied, the Theatre Almonte is more delicate in the use of color, specifically in auditorium/theatre spaces. The color palette and texture used (timber textures on black and white walls), seems to allow the user to pay attention to artefacts or performance on display without commanding focus to itself, thereby fulfilling its functional needs. By way of contrast, the color used for the auditorium/theatre spaces of the Agora theatre (an intense red with angular morphing interior wall) seems more likely to draw attention to itself and away from the performance being produced.

   In the theatre buildings, light is combined with color and/or texture predominantly in the public gathering spaces or main circulation areas, possibly due to the need of mechanical lighting in other areas. These colors and textures are not too intense (pastel pinks, off-whites and wood textures) but at a level which appear to provide appropriate, moderate stimulation and guidance to functional spaces. In comparison to theatre buildings, the circulation areas in the institutional buildings are also filled with the affective presence of natural light but in combination with earthen textures (wood, stone & exposed concrete) instead of color variations. However, enticing colors do not cover the interior walls of the public spaces in the institutional buildings' main access and circulation paths, instead, bright colors are used only as an accent on furniture in sitting/gathering areas like an invitation. Moreover, delicate colors are used in the studios of the institutional Kennedy Center, whereas the private studios in the city of Arts building have vibrant colors that are seen from the exterior when diffused by the interior lights.

4. Consideration to the Site and Nature

   Though, as with theatre buildings, where attention is chiefly focused towards activities inside, of the buildings studied, the institutional buildings appear to be more considerate of nature and the building site, where exterior space is available. The theatre buildings provide no outdoor meeting or assembly areas, while the Clark Arts Institute has an open space specifically for that purpose. Here the open space provided is integrated with the site essentially with the use of water, but unlike the Kennedy Center institute, the building is not only a part of the site, but the site becomes a part of the building as well. The Kennedy Center provides views with visual access to the outdoor exterior environment from circulation paths and also other functional spaces.

From the analysis above, possibilities for new designs can therefore combine cuboid and angular/polygonal forms at elevated points(auditoriums/theatres) to influence a spike of amusement in the massing of the building. This would bring attention to the location of auditoriums/theatres from exterior views and can be achieved by using a range of enticing hues of color and/or textures.

The public and private areas can be detached but connected by walkways, so there is clarity in the different uses but access remains simple. While linear and radial lines can be combined to make up the main circulation path, the spaces between the detached areas can be used to integrate the natural elements of the site with the character of the building (see figure 2.40 (a)). This would include water features and natural gardens where the spaces between can be easily accessed and used as social gathering/relaxation areas to persons who use the institute for educational purposes or visitors. This would provide adequate stimulation that aligns with divergent thinking in the creative process.

For the treatment with color, texture and light, moderately stimulating color schemes can be applied to interior public spaces, such as meeting areas, lobbies and main circulation paths. Color gradients can be used along circulation paths, so that movement through the building becomes not just a function of necessity but user experience is enhanced. There is the possibility of utilizing variations of skylights or atriums in the design, which bring to life color and texture

used on the interior surfaces of the building, as in the precedents (see figure 2.40 (c)). For auditoriums/theatres lighting is controlled but natural lighting can be used in exhibition areas with delicate, subtle colors and textured surfaces. So that the building itself falls away and attention can be focused toward the content being produced. This can also be applied to functional spaces that require more focused thinking associated with convergent thought.

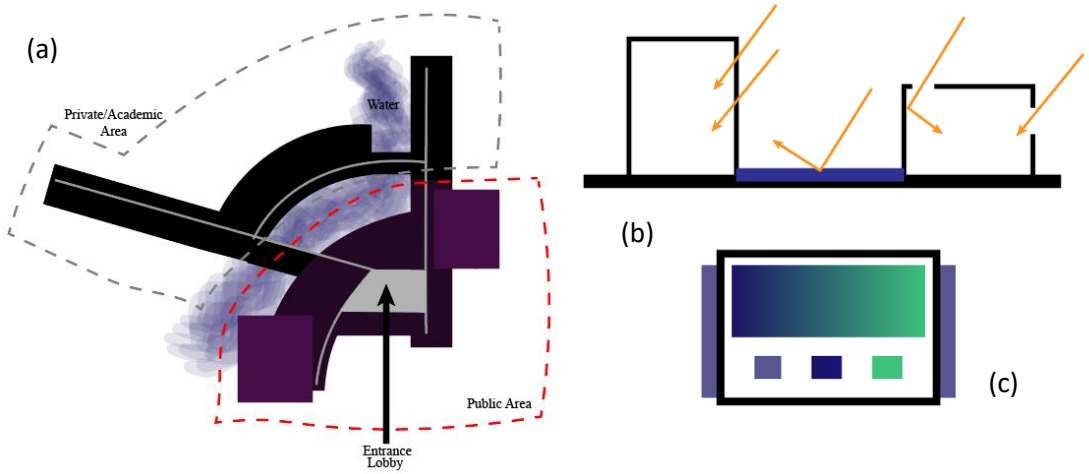


Figure 2.40 Possible Design Outcomes (Private Study, 2019)

2.11 Synthesis of Theoretical Framework

The main theory to be used in the design of the Visual and Performing Arts Institute is the theory of phenomenology as it relates to architecture. A phenomenological approach to architecture utilizes the current depth of understanding of the process of human perception. The approach requires embodiment in the physical environment so that information is gathered from its elements. This process cannot occur without the presence of the human senses and therefore it is through those elements which appeal to the sensory organs that the mind is stimulated and experience is enhanced. Considering this relationship between the external environment and the mind, this relationship can also be used stimulate creativity in individuals.

The building's typology requires an appropriate arrangement of functions that fulfil the dual character of the facility, that is public use for entertainment, and

private use for academic purposes. Circulation and use of space are particularly important to ensure clarity in the layout of the building. The building and its entrance must be easily identified from its external features. The entrance should be welcoming and able to facilitate large crowds. Other functions of the facility are shown below (Strong, 2010).

a. Entrance/Lobby/Box Office/Snack or Café Bar for catering to public needs
b. Auditoriums (one large and fixed for public productions and one smaller for in house productions and rehearsals)
c. Backstage, spaces for storage and preparations
d. Studios for visual arts, craft, ceramics, etc.
e. Galleries for exhibiting created content
f. Administrative Offices for managing the building
g. Service Areas including washrooms for general public and formal users and also for technical items such as acoustics and lighting.

The phenomenological approach to architecture considers the individual's perception of their surrounding natural environment. This perception occurs when information is received by the individual through her sensory organs. These organs relate information to the brain which helps the individual to interpret the presented external environment. The temporal, occipital and parietal lobes of the brain are responsible for processing information retrieved by the sensory systems (visual, auditory, haptic systems and taste and smell). The information from the external environment acts as stimuli to the mind which then reciprocates appropriate responses.

The external environment can be used as source for the stimulation required for creative activities or entertainment. This is possible because the perceptual information from the external environment is received by the parts of the brain which are activated when creative processing occurs. Therefore, the manipulation of the physical elements of the environment can provide stimulation to the mind for the entertainment of users and student's inspiration in producing creative work. The architectural variables (artificial lighting, materials, articulation

of form and space) responsible for creating such an environment directly relates to the sensory systems utilized by the human mind.

2.12 General Design Criteria

The general criteria selected for use throughout the design process is derived from the most relevant parts of the theories and precedents studied.

1. The mass and form of the building must be identifiable with the general character of the building's typology expressing itself both as an institution and highlighting the areas open to the public as entertainment.
2. The spatial configuration and circulatory design of the building is dependent on the duality of functions representing public and private areas, both of which should be efficiently arranged for easy access and movement of people to both natures of the functions.
3. Spaces which require focused attention should have moderately lower levels of stimulation so that the possibility of distraction or over stimulation is low, whereas more intense stimuli can be used in places where dis-associative thought is necessary.
4. Elements such as light & shadow, color & texture and use of the natural environment should be particularly integrated along main circulation areas and public gathering areas.
5. The combination of the studied environmental characteristics must be done so that there is harmony and rhythm in the shaping of the spaces and forms of the facility.

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CHAPTER 3
DESIGN METHODOLOGY

3.1 Design Approach

The institute for the Visual and Performing Arts is a cultural facility which serves to entertain and to educate the public. The design focuses on enhancing the experiential value of the facility so that it is positively stimulating to the users. The intention is to create a comfortable space that encourages creativity, knowledge sharing and also acts as a place for social cohesion and development. Therefore, the facility is regarded as more than just a place designed to fulfill functional needs, but the relationship between the built environment and the user is explored through the potential experiential quality of the building. With these goals in mind, the design approach utilizes concepts built on cultural values and theoretical knowledge of phenomenological applications.

A phenomenological approach engages the user's experience through the first-person perspective of embodied space. Through perception the human body subjectively inhabits space and time in the natural environment. Steven Holl's ideas about architectural design encompasses and explores the impacts of phenomenology in architecture and is oriented towards the user's experience of physical space. These ideas have been put forward in the book *Questions of Perception: Phenomenology of Architecture* (Holl, 1994), a book written by himself along with two architects namely, Juhani Pallasmaa & Alberto Perez.

These ideas have also been widely applied in Holl's architectural work particularly in design of cultural/academic buildings such as Museum for Contemporary Art, Helsinki and Institute of Contemporary Art, Richmond (MacLeod, 2017). The application of this theory to the design of the Visual and Performing Arts Institute is to be expressed through sensory design priorities previously outlined, which will take precedence throughout the design process. A method based on the development of a concept is suitable for use in the approach of this design because it allows extensive exploration of the non-quantifiable value of user experience. The concept-based approach begins from a holistic point of view

and details are determined based on that big idea (Plowright, 2014). This is particularly relevant in consideration to the theoretical framework, since users usually do not experience the built environment as varying singular objects and subjective experience is indeterministic. However, through human sensibility, the entire atmosphere is grasped all at once and meaning is attached, even before details of the environment are understood (Pallasmaa, 2014).

With this understanding of perception, the main conceptual idea can be equated with the general theme attached to the atmosphere of the building. So that the subjective user will initially perceive the general theme, after which attention can be paid to chosen details, spaces or locations, whose characters are derivatives of the larger concept. This is suitable particularly because the common user's mind does not initially grasp the details of the environment as would the mind of an architect. But the general theme of the atmosphere can be initially perceived and initially felt, because of the underlying conceptual structure that connects all the architectural elements into one coherent representation.

3.2 Design Object

The object of design in this thesis proposal is an Institute for Visual and Performance Arts of which the main goal is to serve the creative community in the city of Georgetown. This facility will focus on providing a space for several aspects of the creative arts such as the *visual arts* and the *performing arts*. The visual arts area will include studios for photography, painting and drawing. The performing arts area will include theatres for both public and in-house productions featuring productions of musical and theatric content.

The facility will serve to be a place for education and entertainment to the population, having the capacity to house at least twelve hundred quests in one sitting. More importantly, the institute will be a source for maintaining cultural values and enhancing social integration. The facility is to be located in city of Georgetown, Guyana where the population density is moderate. Access to the area is relatively easy considering major roads which are in the vicinity. Additionally, the climatic conditions are tropical and hot-humid, with three to four months of wet and dry season respectively, throughout the year.

3.3 Aspects of Design Exploration

Several major facets of architecture to be explored in this design include aesthetics and functionality. Aesthetics comprises aspects of architecture surrounding the combination of color and texture, light and shadow, and the use of the natural environment. Aspects of functionality to be explored are circulation, use of space and massing and form. These aspects are explored not only for the functional requirement but also how they can contribute to the overall focus on the subjective experience.

1. Circulation – this describes the movement of people throughout the building fabric. Considering the types of users of the building, entrances and means of egress will affect the circulatory paths of the building, in addition to the spatial configuration.
2. Use of Space – The use of space takes into consideration the different functions of the building, which aspects are given priority, their sizes and shape. This is directly related to circulation and spatial configuration. The arrangement of spaces within the building depends on which functions are given priority, and the necessities of social interaction.
3. Massing & Form – this is the overall form of the building, it will determine how the building is viewed, and which aspects are given priority, it includes the use of shape, materials and colors to enhance linearity and continuity. The form used will communicate to users a general expression of the character of the building.
4. Color and Texture – color grabs the attention of the mind and like texture increases the interest of the potential user resulting in mental stimulation.
5. Light and Shadow – Light is a natural element that takes precedence over many architectural aspects because without light they cannot be perceived.
6. Natural Environment – natural elements provide a sense of comfort and peace that can have positive on the mind, through the integration of visual, haptic, olfactory and auditory realms.

In addition, the social aspect that is needed to encourage social integration between the users is not directly found inside the domain of architecture. However, this community value is supported by architectural features, for example, spatial

configurations which make provisions for both private areas and public communal spaces. This need for social interaction and a sense of community is an important factor to be explored in the design since it will contribute meaningfully to the relationship between the user and the physical environment and how it is perceived.

3.4 Design Process

The nature of the design object prioritizes the experiential value of the users, which is rooted in the theory of phenomenology. The use and function of the building itself demands that it must be a place reflective of entertainment and education to the users. The theoretical framework takes into consideration values that can positively enhance these aspects of the building by focusing on the sensory capabilities of the users by which the environment is perceived. In order to entertain and educate, the users must also be positively stimulated. Based on the phenomenological and functional aspects of architecture as it relates to the object of design, a concept-based framework (shown in figure 3.1) allows the designer to harmonize both aspects in the final proposal.

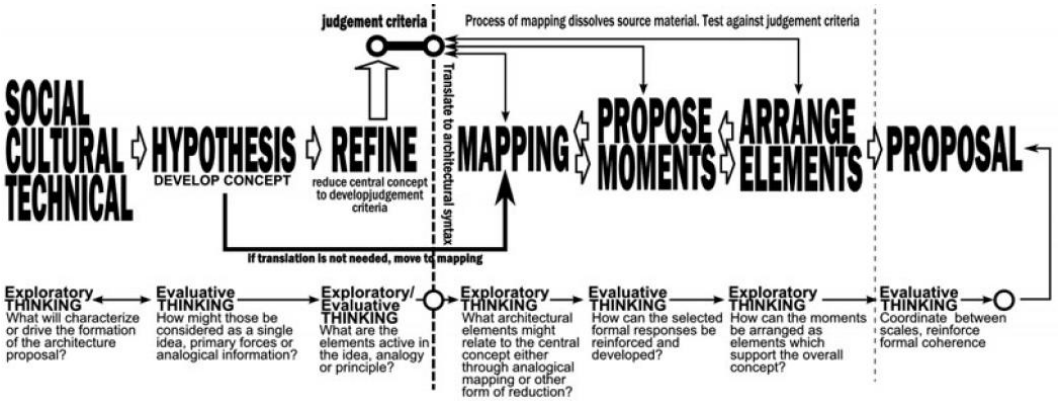

Figure 3.1 Concept-based Framework (Plowright, 2014)

With the use of this theory and a conceptual approach the experiential quality needed for a stimulating experience can be achieved. In addition, since experience is not a quality which is easily quantifiable, it can be seen from the arts that a conceptual approach is more likely to achieve this kind of architectural quality. For these reasons, in order to achieve a suitable final response to the

problem, the design process chosen is the concept-based framework as described by Plowright (2014).

This framework is a top down approach which begins with finding a big idea that will then support the process in the development of the final proposal. This process is chosen because it allows the design to combine the theoretical knowledge and the goals of the proposal, to create the final proposal that appeals to the users, and thus enhances the experiential value of the facility. The main conceptual idea acts as the theme of the atmosphere that is first perceived and felt by the user. It helps the designer in finding the best ways to explore the relationship between the physical environment and the user.

Important in this process, is a relevant concept that will help to focus on the goals of the proposal and also provide criteria by which the development of the design proposal can be evaluated in every step of the process. The concept is "an abstract idea used to order the elements of an architectural design project", the concept can be based on analogic information from a source domain, metaphor or through first-principles reduction (Plowright, 2014). The way in which the concept is applied should encourage coherence throughout the development, so that end product is harmonious and meets the requirements. Throughout the process both exploratory and evaluative thinking is used to meet the goals of each stage. The activities and goals of each stage are described below.

1. Selecting the source domain of the concept

   In order to find the main idea which will drive the design proposal, the context/situation of the building will be examined to establish:

   a. The needs of the user in terms of the activities to be held in the building, this includes the social/cultural proclivities which could affect the design such as meeting areas and movement.
   b. The needs of the building to support the activities contained within, such as requirements for the production of drama, musicals, visual arts, exhibitions, size of spaces, etc.
   c. The needs of the site, including the climate such as wind and sunlight, traffic/access, noise, nearby activities, environmental features such as vegetation, water bodies, soil type, topography, etc.

d. Priorities of the theory regarding appropriate levels of stimuli required for the spaces within and the desired atmosphere as revealed in the theoretical framework.
e. Possible domains for the finding an appropriate concept which is relevant to the design. This idea is related to the theory of experience provided by the building and/or the activities within.

2. Creating a hypothesis to develop the concept

   In order to combine the information gathered, a single idea relevant to the design situation is used to align the information. The concept of dreaming is chosen as the point of development for the central concept. The idea is borrowed from the field of psychology and is relevant because of the similarities with experience, perception and sensory stimuli present while dreaming. From this idea, the hypothesis/central concept of the design process can be derived, as a single idea which can then guide the development of the design.

3. Refine, reduce central concept to develop judgment criteria

   The third stage requires that the chosen central concept is examined to find its elements or governing principles. In this case, the concept of dreaming is taken apart to understand its components, functions/relationships. The underlying principles that can be derived from the concept of dreaming is the result of this stage which will then be used as the judgement criteria.

4. Mapping

   Here the principles derived from the previous stage are analyzed so that they can be transferred from the domain of psychology into the domain of architecture to be applied to the design development. The overarching concepts found in the dream are then used as a way of exploring different configurations or architectural concepts regarding the arrangement of spaces, forms and elements.

5. Propose Moments

   This explores the potential ways in which several architectural situations or contexts where the concept of dreaming can be applied are developed. For example, the potential concepts for circulation, the general form/façade, indoor and outdoor public meeting spaces, use of light, color & texture and the overall

spatial configuration. Each of these proposed situations will then be analyzed to see which is most relevant, which can be developed or if necessary disposed of.

6. Arrange Moments

   The most appropriate proposed situations for applying the concept of dreaming to the development of the design are then arranged to make up the whole design. This step allows the design to become coherent, through finding the best way the proposed moments fit together to express the design intention. Multiple variations may arise which will then be evaluated based on alignment with value of the design criteria until a single output is derived.

7. Proposal

   The final results from the previous stages are evaluated, searched for inconsistencies and potential areas of refinement. This stage will further enforce coherence throughout the design until the proposal used is the best possible outcome. The result will be finished drawings of the buildings floor layout and arrangement of activities, elevations, sections and renderings of the three-dimensional design. The will be produced through the use of software such as AutoCAD, Autodesk REVIT and Adobe Photoshop CC.

3.5 Design Methods

A number of methods from various sources will be applied in the design development. Design methods described by Plowright are expressed as ‘divergent methods of exploratory thinking’ and ‘convergent methods of evaluative thinking’ (Plowright, 2014). These thinking styles have a small difference to the methods described by Christopher Jones which are expressed as divergent and convergent methods. Additionally, methods such as the use of analogies, metaphors and the application of first principles reduction are also ways of search for ideas which create the basis for conceptual design.

In order to fulfil the requirements of the final proposal, methods and techniques from both authors will be used in each step of the process. Other creative thinking tools will also be utilized to find suitable conceptual starting points through

which the main conceptual idea will emerge. These methods are described in more detail below as methods of exploratory and evaluative thinking.

3.5.1 Methods for Exploratory Thinking

Exploratory thinking is used to deepen the understanding of the design problem, its goals and criteria. These methods help to explore potential opportunities, issues and concerns and to find creative ideas as starting points to begin the design. (Plowright, 2014). Additionally, exploratory thinking involves the use of research methods as a way of seeking for information that helps to define the problem and potential goals. These methods of research are also described by Christopher Jones (1972) as methods of exploring the design situation and will be applied in the design process. The application of methods for exploratory thinking are described in Table 3.1.

Table 3.1 Table Showing Exploratory Methods for the Design Process

Methods/ Techniques	*Application & Expected Results*
Literature Searching	This method is used to gather information concerning 1. the building's typological and activity-based needs 2. priorities of the theory of phenomenology in architecture 3. user needs regarding the cultural/social context 4. climate of the location of the proposed design 5. site characteristics such as traffic, vegetation, noise and surrounding activities. 6. The structure of dreams and dreaming The tools used for investigating the information include the use of questionnaires through online services, pictorial and video analysis directed to potential users of the facility, for understanding the social/cultural landscape and user preferences or preconceptions. Internet searches, books and journal will be used to find information about the selected theory and its applications, the building type, potential activities and the concept of dreaming.
Analogy and Metaphor, First Principles Reduction	First principles reduction would be used to examine the structure of the concept of dreaming and adventure through questioning so that it can be broken down into its components, attributes and their relationships. The metaphor (concept of adventure) will be used as a frame of references for seeing

	architectural problems and situations, and therefore potential solutions. Essentially, these methods will facilitate the mapping phase of the design process. Diagrams and sketches/tables will be used to visualize this process.
Questioning	Questioning will be used to find potential areas of development from the information collected. Questions such as 1. What is valuable or interesting to architecture as it relates to experience & perception? 2. Which themes are relevant to the design proposal? 3. How can the selected themes be represented in architectural situations? Sketches and diagrams will be used to visualize the potential relationships and interesting aspects of the themes derived (see figure 3.2).
Accident & the Unconscious	As described by Jormakka (2008), the devices of heterotopia and the surrealism will be used in connection with the principles derived from of the concept of dreaming and adventure. These devices will be used to explore the hypothesis so that architectural elements can be appropriately selected to create the formal arrangements.

Source: Private Study, 2019

Qualitative strategies are most suitable for this design process because are holistic in nature and help to identify the complexity of a situation, in particular where quantities are non-numerical, such as cultural and social dimensions. In these methods the researcher is able to better understand context of the design situation through methods that are open-ended and mostly subjective (Groat & Wang, 2013). Moreover, qualitative research that is based on a phenomenological approach seeks to uncover the qualities of the physical environment as perceived during participation in the creative activity. This is done through a phenomenological interpretation of subjective experiences; a first-person perspective or those of other persons who experience the phenomena (Groat & Wang, 2013). A phenomenological analysis is used to gather information about the potential users' perception, needs and the quality of the sensory environment experienced during the creative process. While the analysis, as described by Clark Moustakas (1994) is used to explicate the creative process of the users, the model of attention by Aron Gurwitsch (2010) is used to situate that process in the physical environment.

To execute this process, individuals to take part in the study will be selected from four creative dimensions representing departments of the facility. The study will be structured so that the participants can create a narrative-type exposition of their experiences during activities throughout their creative process. The technique used to achieve this will be an open-ended interview with a conversational tone to allow the sharing of in-depth information. The narrative will therefore include discussions of things pertinent to their perceptions in the environment. For this reason, the participants of the study are referred to as 'co-researchers', because of the nature of their contribution to study.

The information gathered from the study is further used to derive the building program and functional requirements, which is followed by an analysis of the context of the building site and location. These are integrated with the concept to provide appropriate moments in response to the architectural situation. The concept itself is derived through questioning the main themes of the architectural situation and considering results of the study. The initial technique of questioning for concept exploration is shown in Figure 3.2.

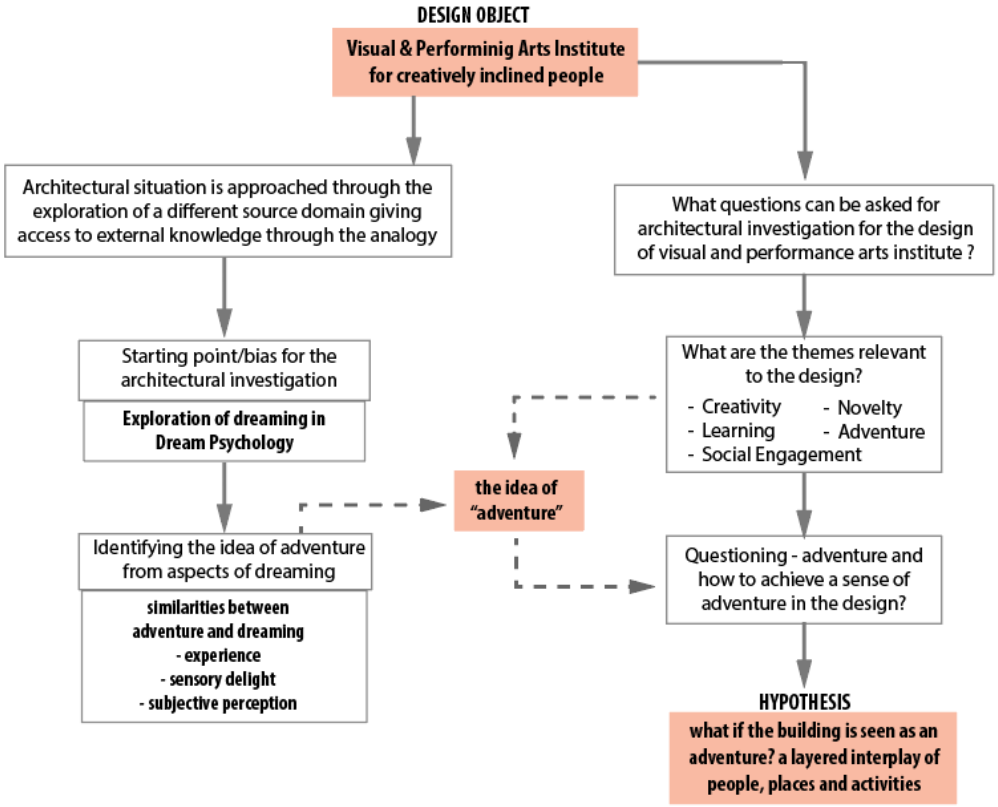

Figure 3.2 Exploratory Mind Map using Questioning (Private Study, 2019)

3.5.2 Methods for Evaluative Thinking

As the name suggests evaluative thinking involves techniques that help to focus on the problem or opportunities and further develop those ideas. They help to decide whether or not ideas and information collected are relevant or important and therefore help to focus on established criteria for design. Evaluation also allows the designer to be able to focus on relevancy and coherence, in this way concepts which are identified as invalid or weak can be removed. The evaluative methods help in the process of refinement throughout the design process (Plowright, 2014). The application of methods for exploratory thinking are described in table 3.2 below.

Table 3.2 Table Showing Evaluative Methods for the Design Process

Methods/Techniques	Application & Expected Result
Questioning	Questioning will also be used as an evaluative tool for refinement of the design throughout the process. 1. Do the selected architectural situations align with the established judgement/design criteria? 2. What are the inconsistencies with the selected idea, concept or architectural situation? Mind maps will be used as tools for evaluations with questioning.
SWOT Analysis	With this tool, the strengths and weakness of the concept of dreaming will be evaluated so that the most appropriate aspects can be further developed and inconsistencies can be highlighted. The SWOT analysis will also be used to evaluate the potential strengths and weaknesses or opportunities for further development of proposed moments and potential arrangements. To execute this, varying diagrams and schematics can be produced through the use Adobe Illustrator and used as visual aids to see relationships between the concept and the domain of architecture.
Judgement Criteria	The judgement criteria are developed from the central concept and will be used as a tool to evaluate the validity of the design throughout the process of the design. The criteria will act as a parameter to examine where the design meets the goals and where it doesn't.

Source: Private Study, 2019

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CHAPTER 4
ANALYSIS & CONCEPTUAL DEVELOPMENT

This chapter focuses on the development of a concept and supporting criteria which would support the design proposal based on analysis of necessary data collected in response to the object of design. The architectural proposal is defined by a phenomenological approach to understanding creative individual's perceptual awareness of the physical environment during the creative process.

To this end, the needs of creative individuals as users, the programmatic needs of the building and conditions surrounding the site, which make up the full context of the proposal are also explored. A hypothesis is then selected for the development of the concept, based on the focal points of the design problem. The elements active in the concept are reduced and prepared for mapping into architectural syntax. This chapter follows the first three (3) stages of the concept-based design process as shown in figure 4.1 below.

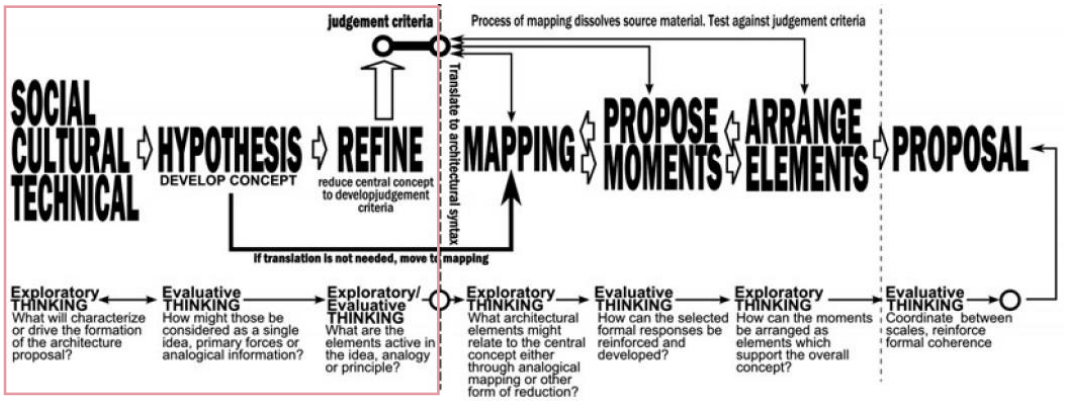


Figure 4.1 The Concept-based Framework, (Plowright, 2014)

The methods utilized during these initial stages of the design process are significantly based on tools and techniques of exploration and evaluation described by Plowright (201). Literature searching and qualitative research are particularly used for exploration, while questioning is used as a technique for both evaluative and explorative thinking.

4.1 The User

The institute for the Visual and Performing Arts is a cultural facility which serves to educate and entertain the users. The design focuses on enhancing the experiential value of the facility so that it is positively stimulating to the users. The intention is to understand the needs and environmental preferences of the user, based on their perceptual awareness of the physical environment during the creative process. To facilitate this a phenomenological investigation is done, with potential users as co-researchers. The investigation focuses on how creatively inclined people perceive their experience of the physical environment during the creative process. The design of the research conducted is based on themes highlighted in the theoretical framework derived from the needs of the architectural situation as shown below (Figure 4.2).

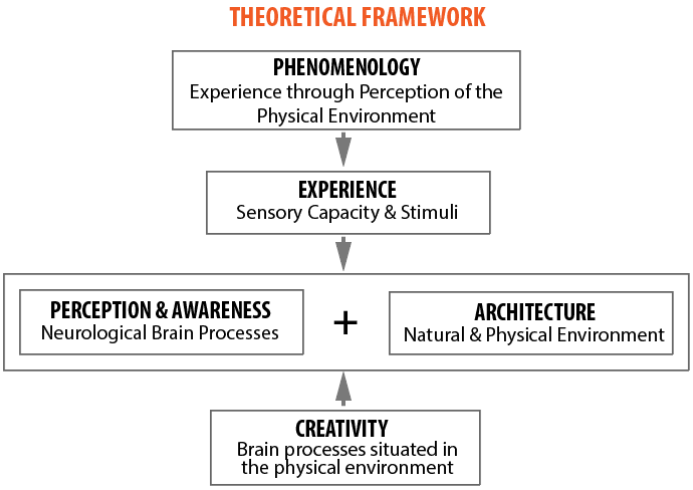


Fig. 4.2 Main Themes of the Theoretical Framework (Private Study, 2020)

Based on the needs of potential users and the needs of the building to be designed, it was decided that creativity is the phenomenon central to the investigation. Since the main use of the building is to facilitate creative work and related activities. The investigation seeks to find out what considerations must be given in design, as it relates to a conducive built environment for the potential users. Important to this study is recognizing that the creative process does not occur in vacuum but it exists within the context of the environment, such that the physical setting can be understood as an inherent feature of the creative process.

However, any influence on the creative process, can only be determined by the individual's perception of the physical environment during the creative process. From the results of the study, the quality of environment needed to facilitate the stages of the creative process can be considered. The study is conducted and analyzed on the basis of the phenomenological method of analysis as described by Clark E. Moustakas (1994), and the model of awareness and attention as described by Aron Gurwitsch (Bader, 2015). A first-person description of the creative process and the physical environment is relayed through open-ended interviews with creative individuals. The detailed description of their embodied/lived experience of the physical environment during their creative process is given; the significant details of which are further discussed.

The results of the phenomenological investigation begin with a representation of the general creative process. The perception of the physical environment is then considered relative to the creative process for each creative domain. From a condensed structural description of all the creative process examined, the stages of the creative process are listed below.

1. Exploring the context, needs and limitations
2. Assessing the context, seeking opportunities/affordances
3. Choosing the main focus of the activity (or unconsciously; 'inspiration')
4. Development of ideas
5. Refinement through evaluation
6. Final production and dissemination of the product.

It was seen that the process becomes most intensely iterative during the shift between the production of ideas and evaluation of those ideas. This iteration in the creative process is represented in Figure 4.3, with further results of the private study for each creative dimension discussed in tables below (Table 4.1 – 4).

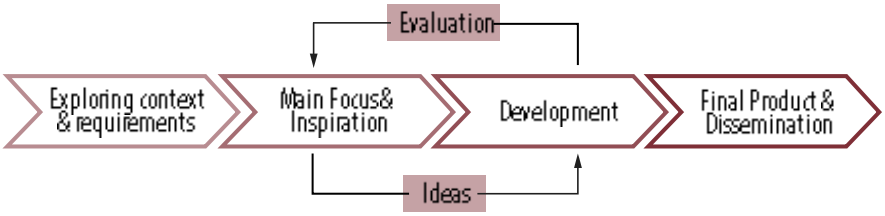


Figure 4.3 Stages of the creative process as found in the study.

Table 4.1 The physical environment during the creative process in photography

	Awareness of Sensory Information
	Photography
1 2 3	Perception of the physical environment is initially based on seeking opportunities and affordances in the given situation of the shoot. • Physical environment is assessed on the compositional basis of the shoot; lighting, color, shapes, forms, people, etc. • In the social context, people are perceived for their materiality and physicality, or as source of information relating to the shoot. • High degrees of sensory information are not perceived as distracting, but possibly stimulating.
4	Perceptual awareness is actively transitioned. • As the next task of the creative activity is sought, the individual seeks out a different quality of environment.
5 6	The physical environment is perceived for use, to aid in the developmental stages of the process, it is no longer static, but is adaptive and can be reconfigured. • Preferred sensory environment is ambient, particularly the aural environment (rhythmic). • High intensity of sensory information is perceived as distractions, for optimal concentration/focus the individual prefers to be alone in quiet. • Interaction with people is sought particularly for evaluative feedback, people are seen as sources of information, functional to the activity at hand.

Source: Private Study, 2020

Table 4.2 The physical environment during the creative process in music

	Awareness of Sensory Information
	Music
1 2 3	Perception of the physical environment is initially based on seeking opportunities and affordances in the given situation of the musical composition. • Physical environment is assessed on the compositional basis of music, both lyrically (in socio-cultural issues) and as a source of melodies. • In the social context, people are perceived as a source of socio-cultural information which can be used as a lyrical basis, or as source of information relating to the melody. • High degrees of sensory information are not perceived as distracting, but possibly stimulating, particularly in the aural environment.
4	Perceptual awareness is actively transitioned. • As the next task of the creative activity is sought, the individual seeks out a different quality of environment.

	The physical environment is perceived for use, to aid in the developmental stages of the process, it is no longer static, but is adaptive and can be reconfigured. • Preferred sensory environment is ambient in all dimensions, however, the aural environment should present no other information besides that which is necessary to the task at hand. • High intensity of sensory information is perceived as distractions (including movement), for optimal concentration/focus the individual prefers to be alone in quiet. • Interaction with people is sought particularly for evaluative feedback, people are seen as sources of information, functional to the activity at hand, otherwise they qualify as distractions
5	
6	

Source: Private Study, 2020

Table 4.3 The physical environment during the creative process in Film & Theatre

	Awareness of Sensory Information
	Film & Theatre
1	Perception of the physical environment is twofold and initially based on seeking opportunities and affordances in the physical or social context • Physical environment is perceived based on the presentation of human interaction, thus socio-cultural issues are assessed for opportunities for writing stories. • Physical setting is also seen as the "stage" of human interaction, as a resource for compositional aspects of film making, here, people in the social context are seen materially in relation to other physical elements. • High degrees of sensory information are not perceived as distracting, but possibly stimulating.
2	
3	Perceptual awareness is actively transitioned. • As the next task of the creative activity is sought, the individual seeks out a different quality of environment.
4	The physical environment is perceived for use, to aid in the developmental stages of the process, it is no longer static, but is adaptive and can be reconfigured. • Preferred sensory environment is ambient in all dimensions for writing and editing. For shooting, the physical setting is especially manipulated for the needs of the activity. • High intensity of sensory information is perceived as distractions (including movement), for optimal concentration/focus the individual prefers to be alone in quiet. • Interaction with people is sought particularly for evaluative feedback, people are seen as sources of information, functional to the activity at hand, otherwise they may also qualify as distractions.
5	
6	

Source: Private Study, 2020

Table 4.4 The physical environment during the creative process in Visual Arts

	Awareness of Sensory Information
	Visual Arts
1	Perception of the physical environment is twofold and initially based on seeking opportunities and affordances in the physical or social context • Physical environment is perceived in relation to the presentation of human interaction, thus socio-cultural issues are assessed as opportunities for artistic expression. • Physical setting is also seen as the scene of human interaction, as a resource for compositional aspects of art, here, people in the social context are seen materially in relation to other physical elements. People are also seen as sources of information with respect to the assessment of the physical setting or the project at hand. • High degrees of sensory information are not perceived as distracting, but possibly stimulating.
2	
3	Perceptual awareness is actively transitioned. • As the next task of the creative activity is sought, the individual seeks out a different quality of environment.
4	The physical environment is perceived for use, to aid in the developmental stages of the process, it is no longer static, but is adaptive and can be reconfigured. • Preferred sensory environment is ambient in all dimensions. Light is utilized based on the needs of the activity at hand. The aural environment is necessarily rhythmic presenting only minimal sensory information. • High intensity of sensory information is perceived as distractions (including movement), for optimal concentration/focus the individual prefers to be alone in quiet. • Interaction with people is sought particularly for evaluative feedback, people are seen as sources of information, functional to the activity at hand, otherwise they may also qualify as distractions.
5	
6	

Source: Private Study, 2020

From the results shown above, two general types of physical settings seen throughout the process are those that provide high information load to be explored or assessed and those that have a lower information presented to accommodate focused attention. It can be inferred that the two ways in which the physical setting and associated sensory information is perceived, are the two ends of a spectrum of exploration and evaluation. Therefore, the stages of the process can be seen as distributed along a spectrum where the perception of the preferred physical setting as the thematic field is dependent on the stage of the process. This spectrum of perceived sensory information in the physical setting in relation to the stages of the

creative process is represented by the figure below, where focal attention increases as the process develops. This is accompanied by a decreased perception of the physical setting for opportunities while, the perception of its functionality increases. In the latter stages the potential for sensory information perceived as distraction is also increased.

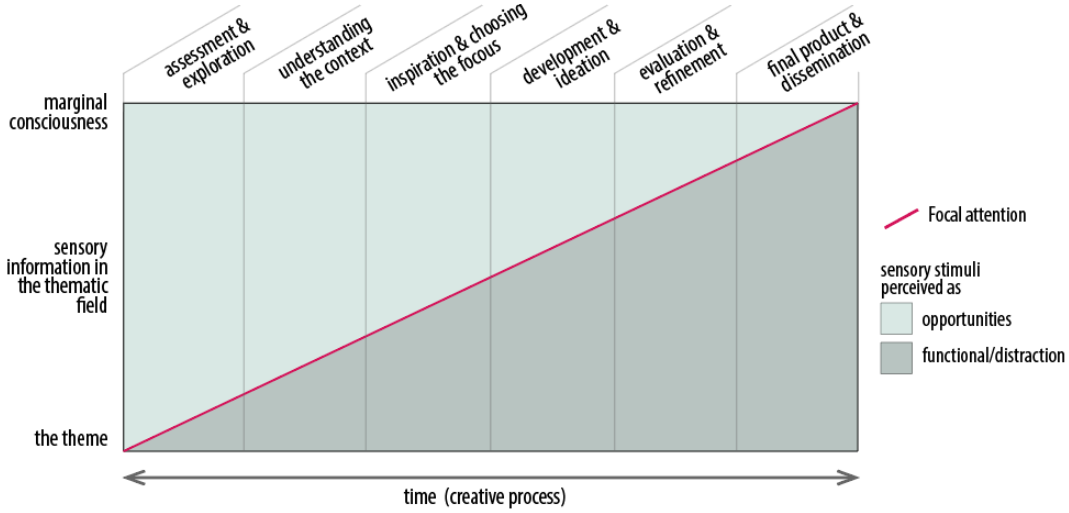


Figure 4.4 The creative process

Further, it is seen that the amount of sensory information presented by a given physical setting is used and adjusted in various ways regardless of the exact type of sensory elements provided. Therefore, some sensory aspects such as color, light, texture are details are focally attended if they directly influence the physical activity at hand, and otherwise fade into the fringes of awareness. The use of color in the environment can be seen as a source of information to be solicited for intentional use by the creative individual, or aesthetic pleasure.

The social aspect throughout the process are present throughout the process, but are perceived differently at various stages of the process. Within the explorative feature of the initial stages social engagement represents a source of context for deriving cultural symbolism or meaning. This information could be metaphorically transferred in the creative productions. Secondly, the next perceptual understanding is based on the physicality and materiality of the form, position and arrangement of social interactions, to be used in the technical production of the creation.

On the other hand, these two qualities are also reflected in the evaluative aspect of the process. Where in refinement, the social interaction sought, is contextually dependent on information directly related to some aspect of the creative production, as in feedback for development. And, secondly, the materiality and physicality of the perception of human presence in the latter stages of the process are seen where social interactions become a source of distractions. Here, people are perceived as sources of sensory information and interaction is limited to fulfil the necessary degree of sensory stimulation needed.

The essential activity involved in exploration, assessment or adjustment of the elements in the physical setting is facilitated by movement through space and access to various spaces. Social interaction as a key component of the creative process is facilitated by movement, in the initial explorative phases, in latter phases where evaluation is the chief concern and in the final distribution of the product. Movement is significant as it allows the creative individual to relocate or change the physical setting as is dictated by the stages of the creative process. The soliciting of information from the environment presents the individual with potentialities as opportunities for action or lines of inquiry. Movement facilitates the ability to choose less explorative spaces, enabling the mental and physical transitions to other parts of the creative process involving more focused attention.

Further criteria for design of these spaces, with consideration to sensory elements reflect the quality of the physical setting needed for an environment conducive to creativity. From the results of the study, factors to be explored in each creative department are as follows:

Table 4.5 Criteria for Design from Study

Creative Domain	*Criteria*
Photography	- Maximize positioning for social situations, with regards to viewing how people occupy space and a focus on other compositional elements of space. - Provide rhythmic sounds which blend into the sensory environment and avoid sudden highly pitched sounds - Provide good lighting.
Music	- External aural environment should produce some opportunities in exploration

	- Removal of all unnecessary auditory information for focus
Film and Theatre	- Maximize the socio-cultural setting of the external environment which is important to viewing human interactions - Silence and solitude, reduced movement in the visual field
Visual Arts	- Varied elements in the visual field, as references, social settings and compositional elements - Needs isolation and silence, presence of ambient sounds

Source: Private Study, (2020)

4.2 The Building

Information obtained from the study is used as direct reference for deriving the spatial and organizational needs of the building based on user activities throughout their respective creative process. This includes the requirements of spaces and zones for each general creative activity, encompassing the four selected departments namely, the visual arts, film and theatre, music and photography/digital arts. These general creative activities are hereafter referred to as the creative departments. Room adjacencies and architectural affordances associated with climate and phenomenological influences were also highlighted for each as a source for understanding the quality of space required in each area for specific activities. These criteria are based on the hierarchy of stimuli based on the degree of perception described in the model of attention and awareness. The spaces mentioned below in each department relate to specific parts of the creative processes explored in the previous sub-chapter.

4.2.1 Room Requirements

Space required for the four main departments have some similar qualities for example work spaces, spaces for social interaction and storage/reference spaces. As seen from the results of the study, the spaces used in the beginning stages of the creative process, function as general settings where the limitations of the intended creative activity are explored. This may refer to the social/cultural and physical elements within the context of the physical environment. The socio-cultural context is particularly common in each department and therefore translates to the importance of areas for social gathering and interaction. For the physical environment itself, exploration in the beginning of the process

After the initial assessment and main ideas have been chosen, the function of the built environment becomes more directly related to the 'doing' of the activity. Here, the spaces relate to the execution of activities, i.e., the techniques used in each case. For example, music studios cater for recording and the composition of music and art studios are spaces where the painting or drawing take place. Likewise, photography and theatre require spaces for shooting and plays, each with individual requirements for quality. Other spaces required are for the storage of materials, resources and references which assist the activities and the final dissemination of the final product to an audience. The table below shows the spaces needed in each department along with similarities or differences between them.

Table 4.6 Showing spatial needs of the four departments.

Spaces	*Visual Arts*	*Music*	*Photo-graphy*	*Film & Theatre*
Open area as multiple working/teaching spaces.	●	●	●	●
Private workspaces (possibly flexible).	●	●	●	●
Social meetings and interaction.	●	●	●	●
Gallery	●		●	
Mini Theatre		●		●
Music studios (recording, etc.)		●		
Shooting studio			●	
Area for finding & searching references	●	●	●	●
Storage Spaces	●	●	●	●
Preparation Room			●	●
Wash & Clean Up Area	●			
Toilets & Showers	●	●	●	●

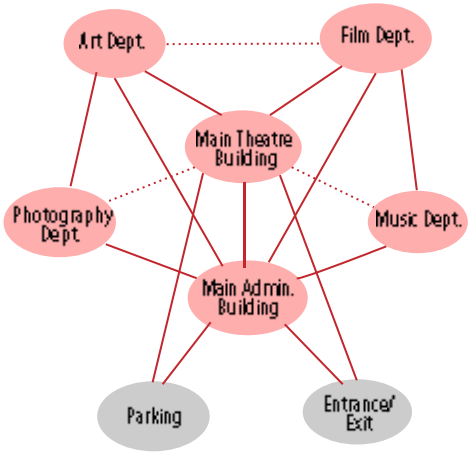
Source: Private Study, 2020

Besides, the four general departments listed above, the building also houses spaces both indoor and outdoor for visiting members of the public. The indoor public spaces include, the main theatre building with box office & resource center, and the main gallery for displaying visual arts. A green open area for the outdoors is also made accessible to the public. Administrative areas which hold

office spaces and meeting rooms support the academic and managerial aspects of the building. Other spaces to be included are service and maintenance spaces, to satisfy the smooth day to day operations of the building. These comprise of parking and washroom facilities for all users, security and service areas for operational staff, and spaces for auxiliary staff.

4.2.2 Organization and Adjacencies

For each space the adjacencies required by the nature of activity and the flow of one activity to the next is mapped in each creative department. This is done separately as the functional areas reflect different zones of the building. The institutional area of the building functions as the hub for academic development in learning. This zone is comprised of the four main creative departments, which have classrooms, staff offices and other support areas to facilitate learning in these areas. The area reflecting entertainment, serves as a place for viewing productions of the creative arts, and therefore is accessible by members of the public. This second zone is comprised of a large gallery space for display of items in the visual arts and photography department, while the theatre space enables productions of the music and film and theatre departments. Since this area may be accessible outside of normal hours for learning, several support spaces are added for easing productions. The third zone is the administrative area, which is the point of coordination and administration of the entire facility. The relationship between these main functional areas are shown below.



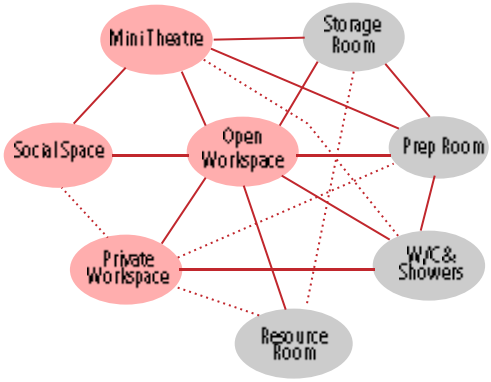
Institute of Visual & Performing Arts ACCESS Direct Easy Indirect	Entrance/ Exit	Main Admin. Building	Main Theatre Building	Photography Dept.	Music Dept.	Film & Theatre Dept	Visual Arts Dept.	Parking
Entrance/ Exit								
Main Admin. Building								
Main Theatre Building								
Photography Dept.								
Music Dept.								
Film & Theatre Dept.								
Visual Arts Dept.								
Parking								

Figure 4.5 Spatial organization and adjacencies of all major functional spaces

The main theatre building and the administrative building are seen as having separate functions. Moreover, these buildings will have access to all potential users of the facility, and includes members of the public who come to view public productions. The parking facility and entrance/exit areas must be easily accessed by members of the public, without obstructing the flow toward the creative departments.

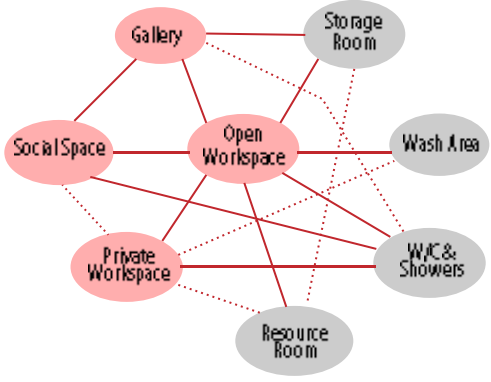
The visual arts department and film & theatre department are located closes to the main theatre house, while photography is placed near visual arts because of the close relationship between the two creative arts. Similar consideration is given to the music department to be closer to the film and theatre department. The administrative building is to be located toward the front of the facility and easily accessible to all other parts of the building. Adjacencies for each zone of the building are shown in diagrams below.

(a) Adjacencies for Film & Theatre Dept.



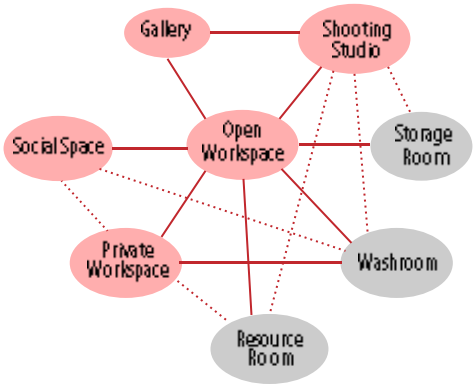
Film & Theatre Adjacency Chart	Open Workspace	Private Workspace	Social Space	Mini Theatre	Resource Room	Storage Room	Prep Room	W/C & Showers
ACCESS Direct / Easy / Indirect								
Open Workspace								
Private Workspace								
Social Space								
Mini Theatre								
Resource Room								
Storage Room								
Prep Room								
W/C & Showers								

(b) Adjacencies for Visual Arts Dept.



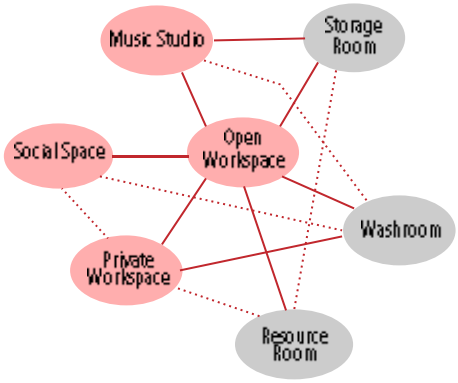
Visual Arts Adjacency Chart	Open Workspace	Private Workspace	Social Space	Gallery	Resource Room	Storage Room	Wash Area	W/C & Showers
ACCESS Direct / Easy / Indirect								
Open Workspace								
Private Workspace								
Social Space								
Gallery								
Resource Room								
Storage Room								
Wash Area								
W/C & Showers								

(c) Adjacencies for Photography Dept.



Photography Adjacency Chart ACCESS Direct Easy Indirect	Open Workspace	Private Workspace	Social Space	Shooting Studio	Display Gallery	Resource Room	Storage Room	Washroom
Open Workspace								
Private Workspace								
Social Space								
Shooting Studio								
Display Gallery								
Resource Room								
Storage Room								
Washroom								

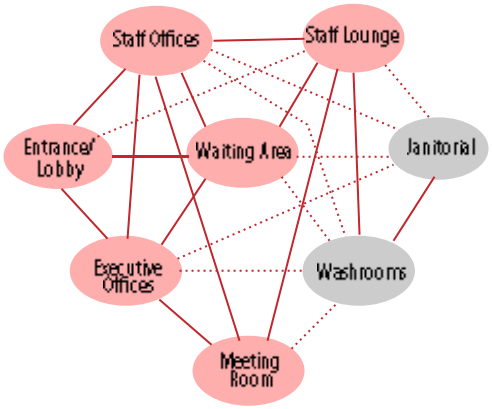
(d) Adjacencies for Music Dept.



Music Adjacency Chart ACCESS Direct Easy Indirect	Open Workspace	Private Workspace	Social Space	Music Studio	Resource Room	Storage Room	Washroom
Open Workspace							
Private Workspace							
Social Space							
Music Studio							
Resource Room							
Storage Room							
Washroom							

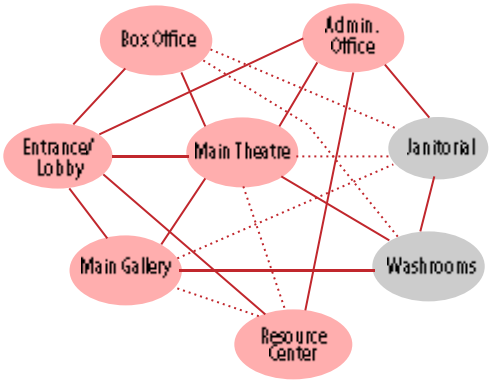
Figure 4.6 Spatial organization and adjacencies of four departments in zone 1

(a) Adjacencies for Main Admin. Area



Main Administration Building ACCESS Direct Easy Indirect	Entrance/ Lobby	Waiting Area	Executive Offices	Staff Offices	Meeting Room	Staff Lounge	Janitorial	Washrooms
Entrance/ Lobby								
Waiting Area								
Executive Offices								
Staff Offices								
Meeting Room								
Staff Lounge								
Janitorial								
Washrooms								

(b) Adjacencies for Main Theatre Area



Main Theatre Building ACCESS Direct Easy Indirect	Entrance/ Lobby	Box Office	Main Theatre	Main Gallery	Admin Offices	Resource Center	Janitorial	Washrooms
Entrance/ Lobby								
Box Office								
Main Theatre								
Main Gallery								
Admin Offices								
Resource Center								
Janitorial								
Washrooms								

Figure 4.7 Spatial adjacencies of zones 2 and 3

4.2.3 Room sizes and spatial capacity

The size of the facility is based on maximizing the current output of graduates each year. This number is an average of 65 graduates per year of the current institute of creative arts, since its first graduation convocation. This is maximized to facilitate a total of 120 graduates from all departments, with supporting staff members in each department, including department heads. Outdoor space maximized is for social areas, and also includes functional areas for parking, the internal road network and recreational spaces. Table 4.6 done by private study shows the considerations for sizes of spaces used in the institute.

Table 4.7 Program requirements for creative departments in zone 1

Film & Theatre Department	*Ppl*	*Qnty.*	*Size (m^2)*	*Total*
Open Workspace	12	2	100	200
Private Workspaces	2	5	30	150
Regular Classroom		4	15	60
Social Space			100	100
Mini Theatre	20	1	60	60
Resource Area		2	30	60
Storage		2	20	40
Prep. Rooms		4	6	24
Washrooms	30	2	16	16
Dept. Office	2	2	20	20
Dept. Meeting Room	6	1	15	15
Total				***585.5***

Visual Arts Department	*Ppl*	*Qnty.*	*Size (m^2)*	*Total*
Open Workspace (Studio)	12	3	50	150
Private Work Spaces	2	6	15	90
Social Spaces	15	1	100	100
Gallery	20	1	60	60
Storage		3	20	60
Clean Up Areas		3	3	9
Washrooms	30	2	16	16
Department Office	2	2	20	20
Dept. Meeting Room	6	1	15	15
Total				***520***

Music Department				
	Ppl	*Qnty.*	*Size (m^2)*	*Total*
Rehearsal Spaces	100	2	160	160
Practice Spaces	1	12	6	72
Auditorium		1	80	80
Regular Classroom		4	10	40
Social Space			100	100
Recording Studios	4+	2	26	52
Storage	4	1	25	25
Washrooms	30	2	16	16
Dept. Office	2	2	20	20
Dept. Meeting Room	8	1	15	15
Total				***580***

Photography Department				
	Ppl	*Qnty.*	*Size (m^2)*	*Total*
Open Workspace	12	2	80	160
Private Workspaces	2	6	15	90
Regular Classrooms		3	10	30
Social Space			100	100
Shooting Studio	6	1	70	70
Display Gallery	12	1	65	65
Storage	4	1	20	20
Washrooms	30	2	16	16
Department Office	2	2	20	20
Dept. Meeting Room	8	1	15	15
Total				***586***

Table 4.8 Program requirements for zone 2 and 3

Main Theatre Building				
	Ppl	*Qnty.*	*Size (m^2)*	*Total*
Entrance/ Lobby	50	1	1	50
Box Office	30	1	1	30
Main Theatre	400	1	+200	380
Main Gallery	50	1	+100	240
Executive Offices	2	2	24	48
Other Offices	2	1	20	20
Meeting Room	6	1	18	18
Research Center (Library)	60	1	100	100
Janitorial Services	4	2	25	25
Washrooms	50	2	32	32
Total				***1243***

Administration Building				
	Ppl	*Qnty.*	*Size (m^2)*	*Total*
Entrance/ Lobby	6	1	1	6
Executive Offices	2	2	22	44
Staff Office	12	2	10	120
Other Offices	3	1	30	30
Meeting Room	8	1	20	20
Staff Lounge	6	2	25	50
Janitorial Services	4	1	20	15
Washrooms	20	2	16	16
Total				***285***

	Total
Creative Departments	2271.5
Main Theatre Building	1243
Administration Building	285
Other	
Cafeteria	
Vehicle Parking	960
Total	***4759.5***

4.2.3 Considerations for Sensory Stimuli

Remaining data from the phenomenological analysis is concerned with the quality of space that is needed for each activity within the stages of the creative process for each general department. Aspects of the sensory environment which were not specifically by co-researchers in the study are treated as “free” stimuli and

placed in the thematic field. The composition and placement of these stimuli are based on free association, except in cases where they are considered to be distractions. Stimuli which has been highlighted by the co-researchers in the study are considered in categories of salient, ambient or consciously non-existent, which define the relevance to focal attention, the thematic field and marginal consciousness, respectively. Spaces for social interaction, and auxiliary areas such as storage rooms, preparation rooms, areas for references and wash up areas are agent spaces, are tangential to the main spaces, since they hold equipment or materials that are particularly functional such as tools, and therefore are treated as particularly thematic to function. The table below shows potential considerations for sensorial elements in architectural spaces of the creative institute.

Table 4.9 Quality of space according to level of stimuli

Intensity of Sensory Input *High (Foreground)* ● *Medium (Ambient)* ◉ *Low (Background)* ○	***Quality of Space in terms of Stimuli***				
Spaces	***Light***	***Col.***	***Text.***	***Snd.***	***Nat.***
Visual Arts					
Open Workspace	●	◉	○	○	◉
Private workspaces (possibly flexible).	●	○	○	◉	◉
Social Space	●	◉	◉	◉	●
Gallery	●	○	◉	◉	○
Film & Theatre					
Open Workspace	●	◉	○	○	◉
Private workspaces (possibly flexible).	●	◉	○	○	◉
Social Space	●	●	◉	◉	●
Mini Theatre	◉	●	○	◉	○
Music					
Open Workspace	●	◉	○	○	◉
Private workspaces (possibly flexible).	●	◉	○	○	◉
Social Space	◉	●	◉	◉	●
Music Studio	◉	●	●	○	○
Photography					
Open Workspace	●	◉	○	◉	◉
Private workspaces (possibly flexible).	●	◉	◉	◉	○
Social Space	●	◉	◉	◉	●
Shooting Studio	●	◉	○	◉	●

Source: Private Study, 2020

4.3 The Site

4.3.1 Location & Context

The proposed site location of the building is located in the capital city of Georgetown, Guyana. Guyana is located along the Northern coastal region of the continent South America. It is bounded by the north by the Atlantic Ocean, to the South is Brazil, with Venezuela and Suriname to the West and East, respectively.

Figure 4.8 Location map of Georgetown, Guyana (maps.google.com, 2020)

The site for the development of the Institute for Visual and Performing Arts was chosen because of its central location in the city of Georgetown. The selected site is approximately 150,000 square feet (13935.46m2). It is located along a central span of land between the Botanical Gardens to the North and a residential housing scheme to the south.

The capital city Georgetown, is located in a region described as the 'low coastal plain', which is to the North of Guyana just of the Atlantic and is bounded on the left by the Demerara River; one of the three main rivers of the country. Though the country is located in South American land mass, the capital city shares more similarities with other Caribbean nations with regards to history and socio-economic development in contrast to other Latin American countries. The people of Guyana rise from six races of people, namely, the Amerindian, African, East

Indian, Portuguese, Chinese and the European ethnicities. Combinations of two or more ethnicities has seen the increased growth of people considered as the 'mixed race' in recent years. For this reason, Guyanese culture reflects a mixture of qualities and characteristics from each of the above-mentioned ethnicities. With Georgetown being not only the capital city, but also the most populous, this rich diversity appears heavily in this region.

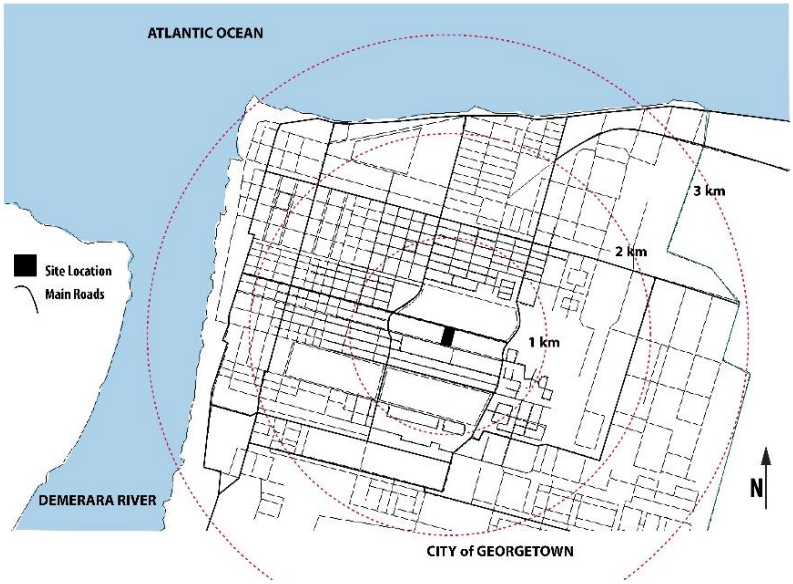


Figure 4.9 Site Location

The design and general character of the city of Georgetown has developed over the years, however, its prime characteristics lie in its colonial past. With the movement of modern architecture also influencing the general architecture of the city, the remnants of Guyana's past are seen in the city's drainage system and its wooden colonial architecture. The capital city was even at one time considered to be the "Garden City" of the Caribbean, however, presently the minimal urban greenery no longer reflects this title (Edwards, Wu, & Mensah, 2005).

Immediately towards the west of the site are the square of the revolution where stands the historical 1763 Monument of Cuffy, the Independence Arch and the more recently constructed Jubilee Park which hosts socio-political events such as Republic and Independence Day ceremonies among other activities. Beyond these features of history and markers of nationhood are housed many of the countries governmental organizations, ministries and bureaucratic agencies. Other

government and privately-owned businesses can be found to the east of the site. In the immediate eastern vicinity of the site is the Cliff Anderson's sports hall and the National Culture Center, the main cultural institution in Georgetown. This plot of land has been designated by the Central Housing and Planning Authority for cultural and recreational development in service to the people of Georgetown.

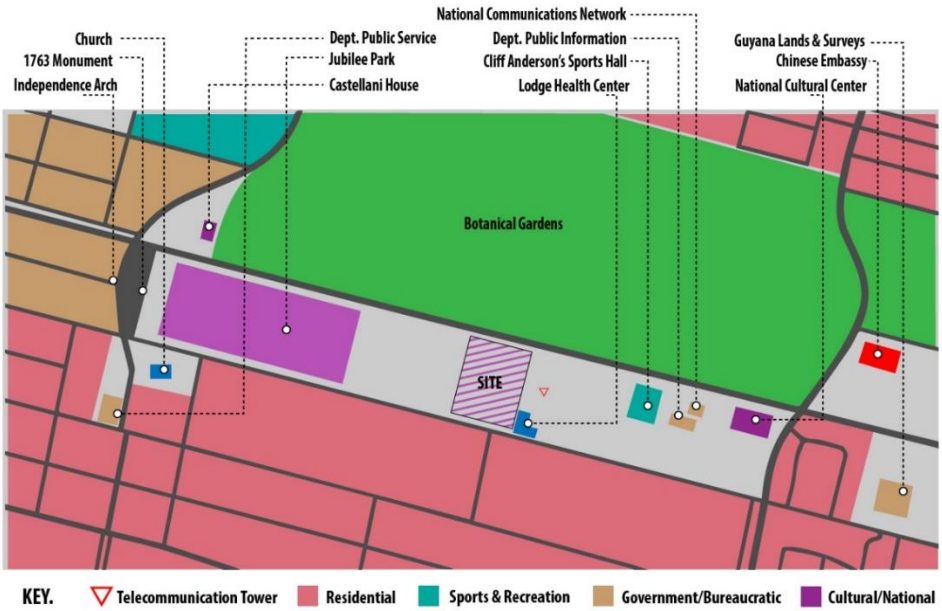


Figure 4.10 Neighborhood context

Figure 4.11 1763 Monument, Independence Arch & Castellani House

Surrounding the site is a mix of social and cultural activities serving various age groups of the inhabitants. The residential area to the south of the site has a predominantly middle to low income populous as the much of the working class.

The residents work predominantly in the government/bureaucratic areas to the west of the site and the youth population is also relatively high. Central business district is located further west of the site beyond the government/bureaucratic areas. To the immediate west of the site is the Jubilee Park which is significant to nationhood and patriotism of the Guyanese people, whereby many such related events take place, such as flag-raising ceremonies. Other cultural activities are also hosted in this park, therefore, a full range of people from different age group are welcome to the site.

Near to the park are also two monuments, namely, the independence arch and 1763 monument which convey a story of the fight for freedom and independence. To the north east of these is the Castellani house; a preserved colonial building whose use has been adopted as museum and gallery to showcase Guyanese culture through art. To the immediate north of the site is the botanical gardens which also contains the National Zoo. Here, the many species of flora and fauna, and wildlife are featured. The 'gardens' is the site of many family-oriented activities, such as picnics and birthday celebrations and is also of the few, fully-green, open-spaces in the city. The National culture center and Cliff Anderson's sports hall to the east of the site, cater to the city's youth population in terms of sports and entertainment, as two of the most significant buildings related to their represented activities. The image below shows the social activities associated with the aforementioned buildings.

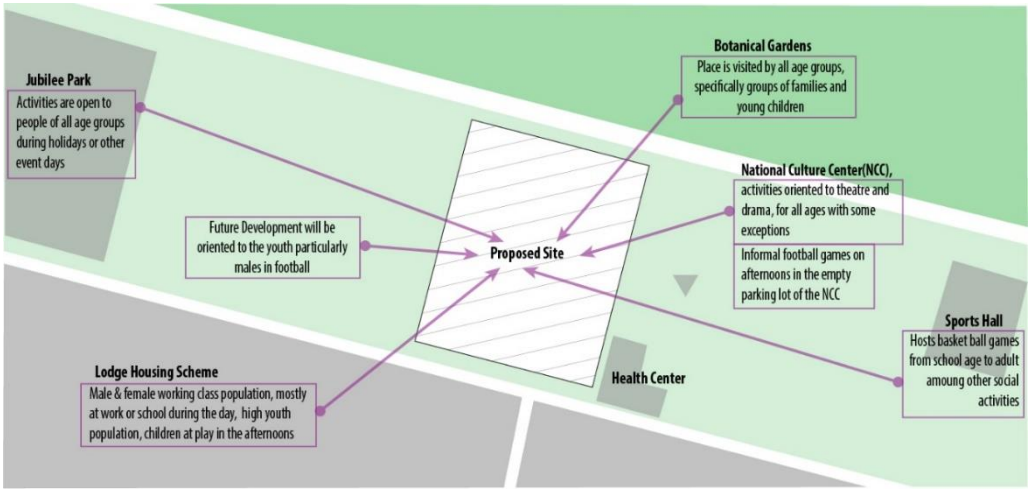


Figure 4.12 Social activities

4.3.2 Traffic & Circulation Patterns

The site fits into the center of the city and is bounded only to the immediate north and south by roads. The heavier traffic during peak hours is generated by persons traversing to and from the central business district from outlying areas. The two roads Vlissengen road and Mandela avenue located equidistant to the site, with stop lights at the points perpendicular to Homestretch avenue. The potential sources of vehicular traffic affecting the site are shown in figure 4.0 below.

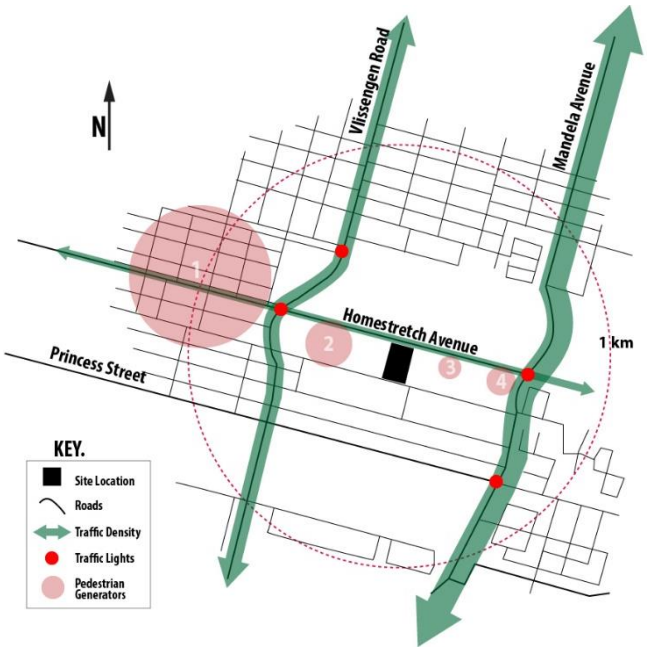


Figure 4.13 Sources of vehicular traffic

Though, there are two traffic lights at on this road in particular, the traffic immediately beyond the site is quite low. This due to the large distance between the traffic lights and the central location of the site along this road. This road is also used as a bus route to areas towards the east of the site, with minimal pedestrian activity since there are few buildings along this part of the road.

Hadfield street on the south side separates the site from the residential area, with minimal traffic, even during peak hours, since this road is mostly used by inhabitants of the area. The pedestrian traffic along this road is higher due to the presence of people who live in the housing settlement. There is no used foot path that crosses the site and connects the two parallel roads. Residents sometimes park vehicles informally along the parapet to the southern edge of the site and the empty

land is sometimes used as a site for informally disposing of solid waste generated by the nearby houses.

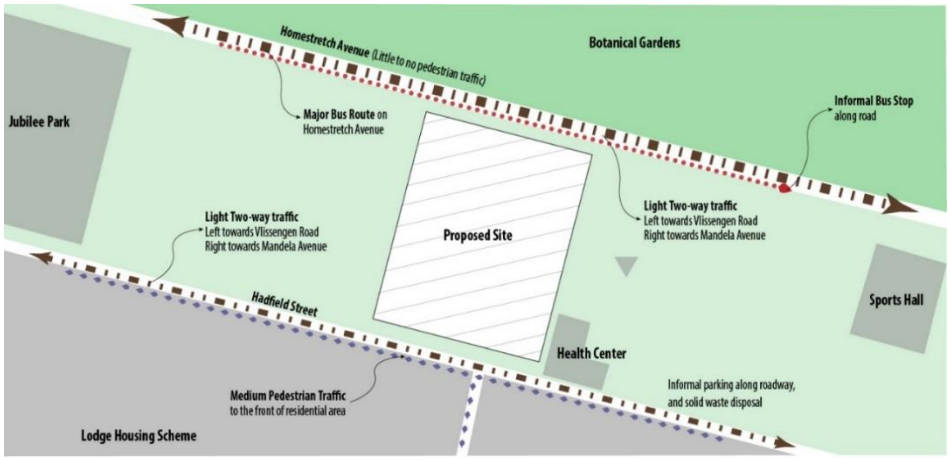


Figure 4.14 Sources Pedestrian and Vehicular Traffic

4.3.3 Sensory Context

Since the site is located along a major access road, there is some amount of noise which is produced by ongoing traffic from the northern boundary. However, along both roadways the noise from traffic is minimal, given that the traffic lights and intersections are approximately three hundred meters away in either direction. As a result of this distance and the central location of the site along these two points the noise level is minimal. Beyond the road to the north is also the botanical gardens which is particularly quiet. On the southern end the access road is particularly used by the residents, the residents themselves are generally absent during the day, since they are mostly of the working class.

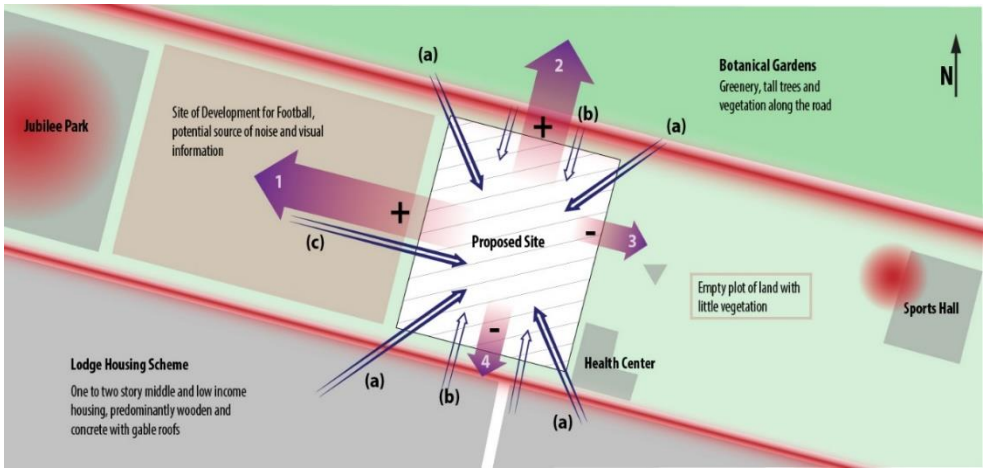


Figure 4.15 Sensory Information Present on the Site

Other noise producing sources are the Jubilee park, mostly during weekends and when events are hosted at that location. The same applies to the Cliff-Anderson's Sports Hall, yet these facilities are a fairly distant from the site and therefore do not particularly generate noise on the site. Toward the southeastern end of the site is the Community Health Center, which is a quiet area.

In the visual field, views toward the site are from the residential area to the south and the directions of incoming traffic along the roadways. Foot traffic from along the roadways, more significantly near the residential area are direct lines of sight towards the site, as shown by (a) and (b). View (c) comes in from the Square of the Revolution approximately 300 meters away, yet is a direct line of sight given the flat land and absence of buildings in that direction.

View (1) from the site, is toward the west showing the sunset and government buildings which lie beyond the Square of the Revolution. There is also the 1763 Monument and the Jubilee park which are very symbolic to culture and patriotism, even representing historic events. View (2) from the site is a nature-filled view of the trees in the botanical gardens and the sounds made by birds to a minimal extent, presenting an atmosphere of serenity to the site. View (3) from the east, shows the sunrise and other cultural buildings along the eastern end of major roads. View (4) is toward the residential area with structures which are mostly made of concrete and timber rarely exceeding two-stories. Also, this view provides a rich scenery of day to day life, some social activity of the community and families, therefore pedestrian movement is the foremost visual information that comes from this area.

(a) (b) (c)

Figure 4.16 Views of Site

With reference to the Figure (a), views which can be seen from the site particularly show the flat landscape from a level higher than average human height, and most structures in the vicinity are single and double-story buildings. Views from a higher level, show a richer perspective of the sprawling landscape and its elements.

4.3.4 Climate Context (Sunshine, Rainfall, Wind Speed & Direction)

Georgetown is located in the subtropical zone to the south of the equator, where a hot-humid climate persists throughout most of the year. Here, there are high temperatures and humidity with heavy rainfall having little seasonal differences. However, given the coastal location of the town, the trade winds from the north reduce the intensity of these temperatures and are a great source of wind for ventilation. Georgetown, experiences two major seasons, the wet, rainy season and the dry sunny season. The two wet seasons span from April/May to July/August and from December to early February, while the dry season is felt during the months in between. The diagrams below show the climatic data of Georgetown.

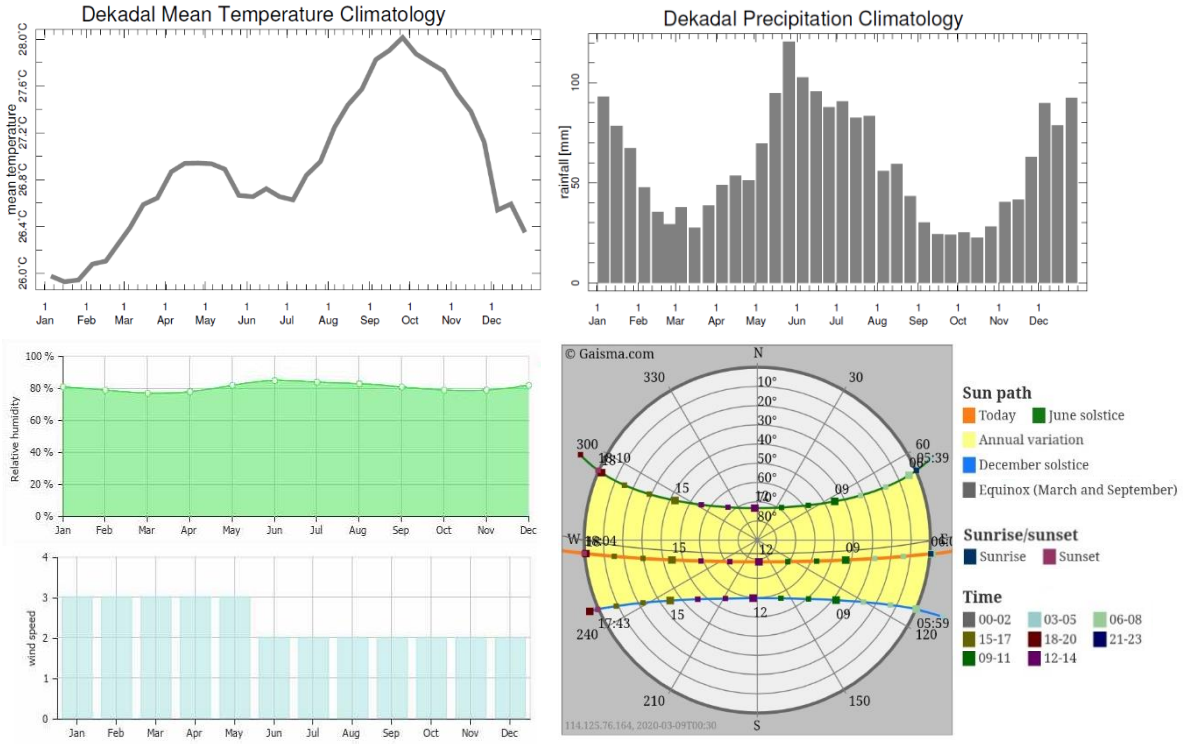


Figure 4.17 Yearly Climatic Data for Georgetown, Guyana (Gaisma, 2020)

For eight months of the year April to November, the path of the sun is predominantly toward the south, while the path shifts toward the north for the remaining three months of the year. The lowest temperatures are recorded during the rainy months of the year. These are from December to February and June to July, with temperatures as low as 26 degrees Celsius, with the highest temperatures reaching 29 degrees Celsius in September and October. Rainfall is the highest in June with precipitation levels exceeding 100mm and lowest in the dry seasons. The percentage of humidity is mostly constant throughout the year with little variation and is felt more significantly when the weather begins to change from the dry to wet days.

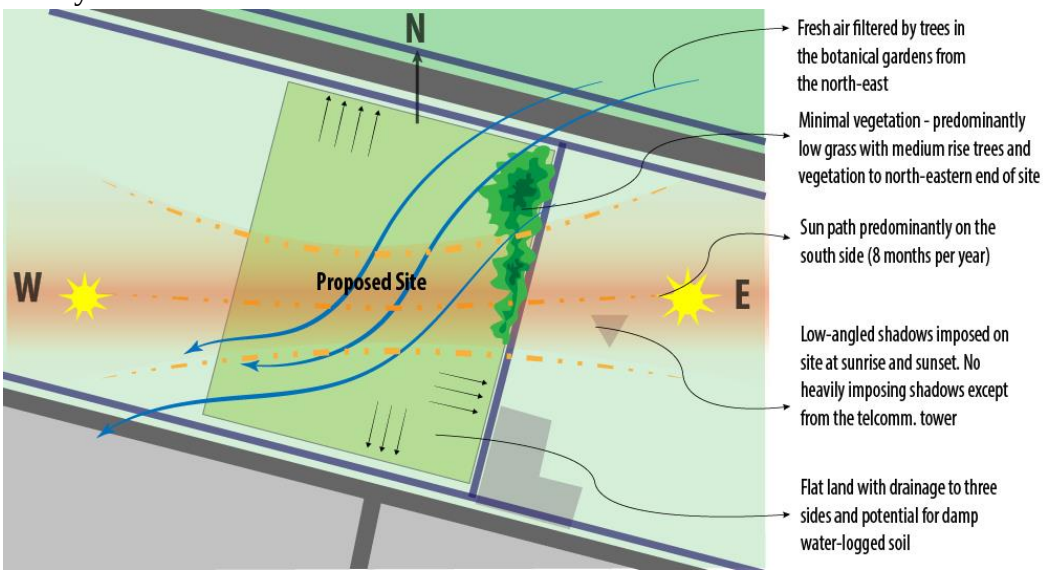


Figure 4.18 Environmental and climatic information on site

The site is a flat landscape with minimal existing vegetation as short grass and shrubs. The small trenches for drainage are along three boundaries of the site, to the north, east and south, with an approximate width of 3 meters. These eventually drain into larger canals towards the west and finally into the demerara river. The flatness of the land poses a potential for water-logged areas around the site, having a semi porous loam soil, which is found predominantly along the coast.

The sun path on the site is generally uninterrupted, since there are no tall buildings nearby. Therefore, the shadows casted on the site are low-angled from the east and west, and are present during the sunrise and sunset for a range of one to two hours. The telecommunications tower located on the plot of land nearby casts

a shadow for half of the day on the site, and the shadow casted by the community health center is minimal and limited to the south eastern corner of the site.

Since the botanical gardens is located to the north of the site, incoming winds from the ocean are naturally filtered by the existing trees in the north. Winds are imposed on the site from the north east and continue toward the residential area. Thus, the proposed building must consider airflow patterns which do not reduce air flowing to the residential area.

4.3.5 Criteria of the Site for Design

Within the neighborhood context of the site, there is a heavy cultural presence in the types of activities and buildings which surround the site. This influence the kind of social activities nearby, which are greatly supported by the citizens who live in the residential area. The site location then, for a creative arts institute such as this proposal is appropriate in this context. The facility's public productions would present a richer range of social activities for different age groups in the residential area. Regarding the site, the following criteria have been derived from the information recorded above.

Table 4.10 Criteria for Design from Environmental Considerations

Feature of Design	*Criteria*
Access and circulation on site	- The main entrance and exit should be located on the northern boundary, as the main access will come from the main road, that is, Homestretch Avenue. Another entrance or exit can be placed on the southern boundary to reduce potential congestion after public events. - Considering residents who park on the parapet of the existing site, a southern entrance would also give residents access to the facility. Additionally, parking spaces can be made available to the residents for the evenings and during the night. - A footpath through the site, would give pedestrians access to Homestretch Avenue from the residential area, to access public transportation. - The main administration building and theatre house for public access must be centrally located and be directly accessible with ease.

Sensory	- The western view can be used as a source of visual delight to all potential users of the site. - The northern view presents an atmosphere of serenity, which coincides with the needs of the visual arts department. - The southern view of the site presents with the every-day social life of the residents, placing the film and theatre department near this area symbolizes the rich humanistic of film and theatre. - Views into the site from incoming traffic should be considered in the form and aesthetic presentation of the building, that is, fitting into the context of an atmosphere which is institutional and cultural.
Climatic Context	- Special consideration to air flow and ventilation is necessary in finalizing the form and massing of the building so that air flow to the residential are remains mostly undisturbed. - The sun path on the site, should be regarded in relation to integrated passive and active cooling techniques and also in the experiential context of the user. - Since the flatness of the land may result in potentially water-logged soil, there should be some active control of drainage by creating contours on the site or to channel water as an experiential element of the site.

Source: Private Study (2020)

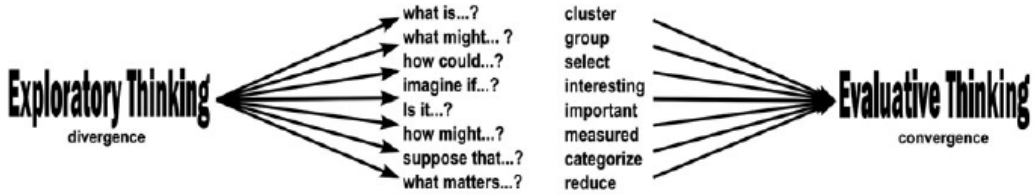
4.4 The Concept

The formulation of a concept to be used for the final proposition of the building takes into consideration the architectural situation, its aims and constraints, utilizing exploratory thinking to select the initial idea. The forms of design thinking described by Plowright, are used in each stage of the design process, beginning with exploratory thinking. The possible types of questions used for exploratory thinking and those for the evaluation of potential ideas are shown in figure 4.19(a).

The concept-based design method begins with an exploration of relevant areas to begin inquires for the initial idea of the concept. This will become the starting point for other inquiries, which, through questioning leads to the concept. The first question asked in searching for a source to become the bias of the concept is ‘what matters to the architectural situation?’ Here the design problem is highlighted, and thought is drawn to the major themes discussed in the theoretical framework. The themes investigated are specific to users’ subjective experience and their perception of the physical surroundings, both natural and designed by

man. Within this context is also placed creativity, which is an act grounded in human experience and the environment.

(a) Design Thinking



(b) Concept-based framework

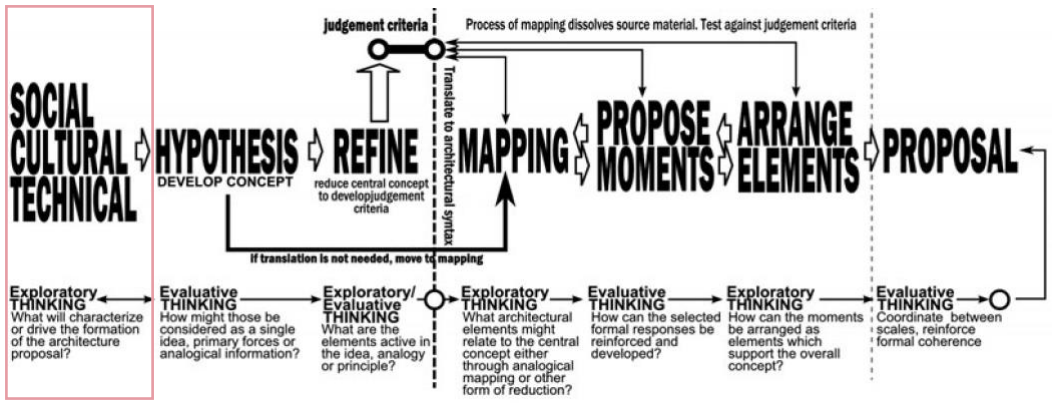


Figure 4.19. Design Method and Techniques (Plowright, 2014)

Further inquiries are made through questioning in an attempt to discover another source of information which may relate to these essential topics. Other criteria for design, based on the results of interviews are also given consideration. A key aspect of what matters to the architectural situation is the nature of experience and how it unfolds from subjective perception. During explorations of the experience of dreaming and idea of correlations of similar foundations where seen. The relationship between dreaming and creativity, as previously discussed, further substantiates this line of inquiry. The figure below shows the initial idea of the relationships between user experience in the built environment, the dream experience and creativity, where they intersect as subjective perception, given by ‘the person’. An understanding of the nature of dreaming is sought by the question ‘what is a dream?’ for potential development.

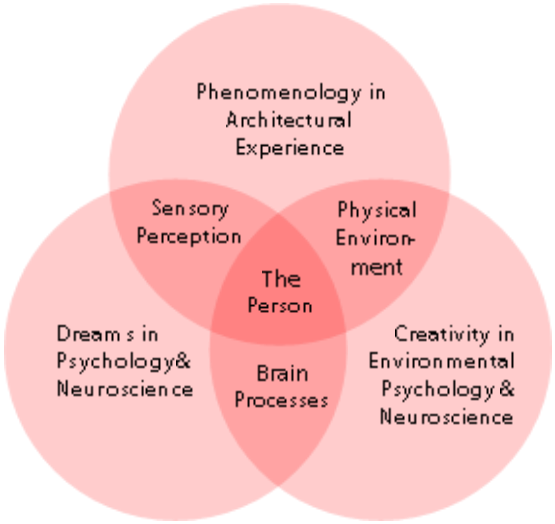


Figure 4.20 General relationship between Dreaming, User experience in the built environment and creativity. (Private Study, 2020)

4.4.1 Exploration - What is a Dream?

The initial idea of dreaming has immediate attributes similar to the architectural situation at hand. This is the fact of an individual who subjectively perceives the environment through a sensorial experience including all of the senses. The major limitation to this bias is the "unrealistic" nature of the dream in relation to the realism of architecture. However, this limitation is irrelevant, since the actual immateriality of the dream is only realized after one has awoken from the dream.

Further exploration of the idea of dreaming shows how the perspective and awareness of the dreamer sometimes vary in different types of dreams, ranging from little to full awareness (Thompson, 2015). While the content of the dream, such as images and objects are projected by the mind, and the use of sensory pathways activated by brain regions (Grimes, 1996; Khan, Combs, & Kippner, 2002). The characteristics and narrative of dreams, range from bizarre and fragmented to coherent and sequential during different brain states (Thompson, 2015).

The major point of interest in the idea of dreaming is its relevance to dream psychology. In therapy sessions, the analysis of dreams is used to understand psychological issues of personality, preference and life-context of the dreamer. Here, puzzling and mysterious dreamscapes are understood as analogical and

metaphoric. The layers of these representations are analyzed and interpreted to find deeper meanings and understanding (Whitmont, 1989; Grimes, 1996).

4.4.2 Hypothesis 'Architecture as Adventure'

The hypothesis developed as the foundation of the concept is '*architecture as adventure'.* Several ideas are combined to form this single idea as the hypothesis in the development of a coherent concept for the design. An evaluation of the initial idea of dreaming shows that, it is much too intangible to be adequately transferred to the domain of architecture. Therefore, to further develop the conceptual foundation, lines of inquiry in initial idea which have more material potential are sought. The image below shows potential areas of inquiry in the initial idea.

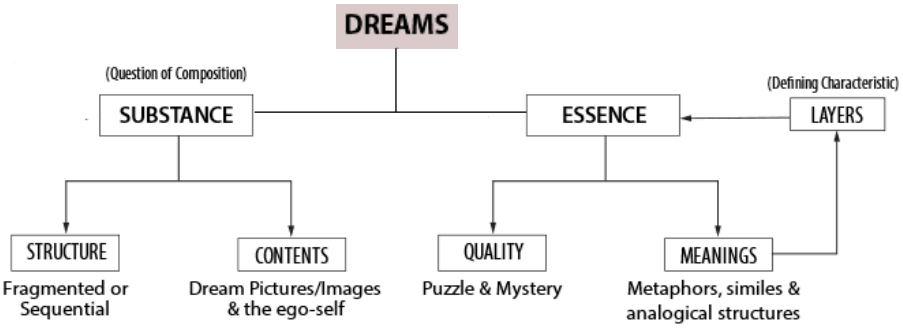


Figure 4.21 Potential areas of inquiry in the initial idea. (Private Study, 2020)

Three ideas are taken essentially from evaluations of the initial idea of dreaming, interviews about the creative process and the general aspect of perception in phenomenology for further development. The result of the evaluation is based primarily on grouping ideas of importance and reducing these ideas to their essences.

1. From an evaluation of the question "what is a dream?", it is seen that one of the key points of interest in the idea of dreaming, is the need to uncover the layers of metaphoric and analogic foundations to find meanings. This brings to the forefront, the need for exploration of the dream context and the challenge involved in its interpretation to find important information. Therefore,

exploration and challenge are isolated as the main attributes of the idea of dreaming, for further development through imaginative associations.

2. Another aspect of importance in dreaming is the structure and meaning of the dream built on layers of information, which contribute to its identity as bizarre, incoherent, fragmented or sequential. This aspect of layers presents as a potential tool for arrangement and formal configuration of elements in architectural syntax.
3. During the investigation of creativity and the environment with creative individuals, much emphasis was placed on the intention during the creative process. It is seen that the process entails a lot of communication and interaction with the physical environment at various intensities. This interaction is directed by the intention of the creator, and helps to direct the paths to be taken in making decisions during the process. Exploration and challenge are also key aspects of the creative process, which help the creator to discover tools and opportunities in the physical environment to support the process.

A consideration of these major subjects taken from the idea of dreaming and perception of the physical environment by creative individuals, strongly parallel the activity of adventure. It is seen as directly associated with the themes of challenge and exploration, which are fundamental attributes of the adventure (Gardener, NA; Erickson, 2015; MasterClass, 2020)**.** Adventure in life, literature and film, embodies the process of and a journey of discovery which culminates in the creation of something new, through both explorative and challenging events. It is also comparable the experience of dreaming in some ways(**s**). Thus, the concept of adventure is seen as a more physical departure to architectural syntax, and as a concept which embodies the nature of creative work.

4.4.3 Refine – Judgement Criteria

The concept of adventure presents several material situations which can be transferred for use in architectural syntax. Since much of the attributes and characteristics of adventure are physical in nature, some situations can be directly used in the architectural context. This section aims at locating the elements and

principles active in the concept of adventure which will then be translated to aspects in architectural design during mapping.

Explorative and evaluative techniques of questioning is used for identifying elements and relationships active in the concept of adventure. For this exploration, attributes of adventure are taken from both literature and film. The question, 'what is adventure?' begins the process of breaking down the idea to its main components and further parts. There are three main components which describe the general constitution of an adventure, these are, the main character, the journey itself and the adventure world. Besides general characteristics, most major relationships exist between the journey and physical phenomenal world of the character. The diagram below shows the similarities between the dream and an adventure with their relational elements.

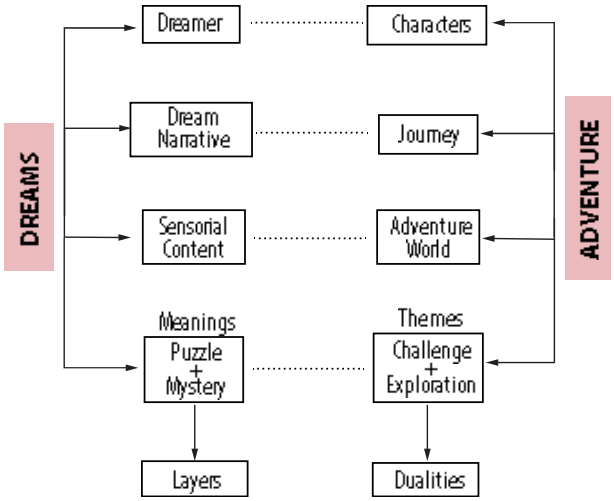


Fig. 4.22 Similarities between dreaming and adventure

The three main elements active in adventure, as represented in genres of film and literature, are described in more detail below. Each component has other elements and characteristics which bring structure the adventure and make it interesting. The information given below is taken from various sources which describe the constituent parts of an adventure (MasterClass, 2020; Erickson, 5 Elements of a Good Adventure Novel, 2015)

1. The Main Character

This is the individual who goes on the journey of the adventure and is represented by the protagonist. The individual's experience is marked by embarking on an

exploration of a generally new world, which leads to many paths of which only one would be followed. The experiences in the adventure most particularly involve challenging situations, in the form of surprises, new experiences and discovery. The adventure presents the opportunity of learning and growth to the protagonist.

2. The journey/Quest

The journey in the adventure is represented by a storyline. The storyline is generally a sequential series of climactic/thrilling events, and is directed by the choices of the character. Therefore, the journey presented by the storyline has many paths which lead to various situations and destinations. At many times during the journey, the character is presented with choices which will ultimately direct the storyline of the journey. Another aspect of the journey is the existence of *themes,* which give the defining characteristics of events which occur along the journey. Theme which define all adventures includes aspects of challenge and exploration, suspense, mystery, unknowns, dilemma, opportunity and change. Challenges faced are personal, external, natural or ethical, etc. However, other themes express dualities such as love & hate, trust & betrayal, joy & sadness, etc., which describe circumstances that face the character. A theme may also identify the general nature of the entire adventure, such as sci-fi, fantasy, dystopian, etc.

3. The Adventure World

The adventure world is a representation of a fantastical/supernatural version of perceived physical reality, with full sensory experience provided by various places and landscapes which may be real or imagined. The landscapes range from open plains, mountainous areas, jungles, oceans and rivers which appear in various places along the journey. The places where the character experiences events or must journey through are destinations. These destinations are places such as communities and settlements, which have various densities of people, languages, ethnicities and classes (rich or poor).

In the exploration of the concept of adventure, various aspects such as, the goal of the adventure, its characteristics and structure, are similar in nature to the creative process of creative individuals. By thinking/questioning of the creative process of individuals as an ‘adventure’ the proposal can be viewed in terms of architecture as ‘adventure’.

Therefore, the creative institute is seen as a place of adventure, having a layered interplay of people, spaces and activities. For implementing the concept, 'dualities' which are derived from thematic episodes of the adventure, can be seen as multiple, significant aspects of the architectural situation for consideration in design. These can be physical elements or social & cultural ideas, which have been derived from programmatic requirements, data analysis and the concept of adventure. These highlighted aspects can then be explored through 'layering' as a conceptual tool for explorative thinking, to examine how dualities interact with each other, and how they can be represented as unified wholes, while retaining their identities. The use of layers and dualities in the design process are therefore tools used to arrive at the final design.

4.4.4 Mapping (Analogical Transfer)

The key features explored in the concept of adventure are mapped and used as metaphorical, and tangible analogical sources, to propose suitable moments in the architectural situation. By using adventure as the lens to see the architectural situation, the mapping begins by looking at the similarities previously highlighted in both dreaming and adventure. Layering as the essence uncovered of the dreams, and dualities as derived from adventure are considered throughout the design as a tool for combining features. The image below shows the possible points of connection between the concept of adventure and the domain of architecture.

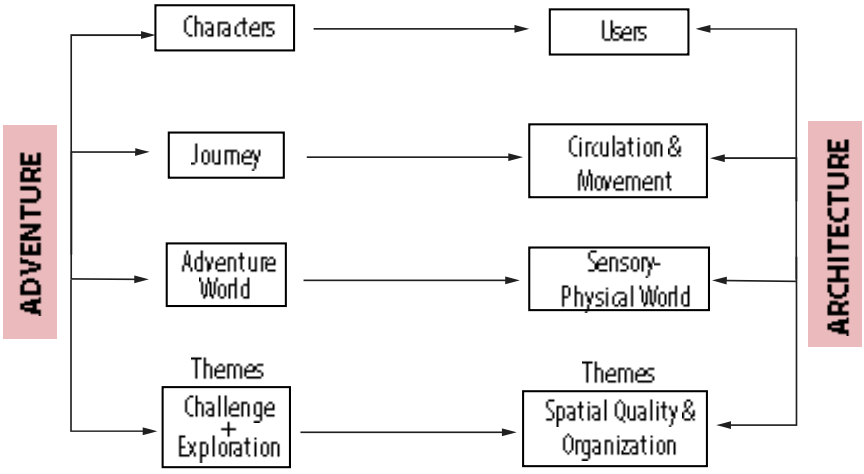


Figure 4.23 Analogical transfer from adventure literature to architecture (Private Study,2020)

The design proposal is centered on the perception and experience of the user; therefore, the dreamer or the main character of the adventure is seen as the potential users of the institute. The journey/plotline of the adventure is perceived as movement throughout the building itself and takes into consideration the sequential flow of the storyline. This looks at the aspect of circulation from outside to inside of the building and also in and around the site. The adventure world is considered as the main source of tangible information to be used analogically in the ideation of concrete elements for the design. Therefore, the feature of the adventure world is reflected in the use of 'landscapes' or aspects of the physical world, limited to the context of Guyana. Table 4.11 shows the analogical relationship between the concept and the domain of architecture.

Table 4.11 Domain to Domain Transfer of the Concept

Adventure	***Architecture***
The Protagonist	*The User (experience)*
- Experience of thematic relationships/'dualities' along the entire journey; opportunity, change, dilemmas, surprise and challenge, (internal, ethical, natural)	Type of event and experience to be communicated by the building's design Consideration to architectural dualities in the design
The Journey/Quest	*The Function (circulation)*
- Storyline, a series of thrilling events	Movement and circulation
- Multiple choices from points of departure	Bifurcations in paths, shortcuts, footpaths, etc. which lead to planned areas of the building
- Multiple destinations from choice of paths to be taken	
- Persons, or groups of people met along the way	Planned or unplanned social interactions
- Relationship between, destinations, people and location	Density of people, relative to function & quality of formal aesthetics
- Revelation or discovery along the way	Opportunities for experiential events
Landscape/Physical Setting	*The Building (form & atmosphere)*
- Various types of landscapes/ topography, hilly, coastal, jungle, savannahs, valleys, riverain and marshes, oceans, caves, lakes, rivers, mountains, etc.	General approach to formal arrangement of the form and massing of the building, other aspects of architectural, atmosphere & sensorial qualities such as color and texture
- Destinations are embedded in landscapes	Main functional places, domains of creative arts in the institute
Community; social & cultural landscape within the physical and built environment, destinations having communities/settlements	Cultural considerations in sensorial qualities such as light, color, texture and sound
- People residing in communities/ settlements as the source of social interaction	Main functional areas with spaces which present opportunities for social engagement

Source: Private Study, 2020

The adventure metaphorically represented in the building is one of creative endeavors, where exploration and challenge form the major aspects of creativity and are represented in the design. Here the process of creativity as given by the co-researchers are represented by spaces within the building as, for example, places of exploration, challenge/focus and moments of inspiration or translation. Where, spaces of exploration offer opportunities for social engagement and play, having more sensory information, while areas of challenge present lower stimulation to allow users the focus needed for the task at hand. The spaces of exploration are most particularly reflected in the circulatory spaces such as entrance areas, corridors, lobbies and public spaces (outdoor/indoor).

The areas dedicated to focus and concentration represent challenge and include, offices, classrooms, studios, and private spaces along with technical areas; these destinations are seen as the points of convergence. Additionally, the final stage which describes completion and giving the finished product to clients, also includes the public spaces where productions are viewed and performed. These are the main theatre, main gallery, information & resource center which can be accessed by members of the public. Spaces in between these extremes are flexible and allow for varying degrees of stimulation along the sensory spectrum

Further analogical information embodies the experiential and sensorial aspects of both the dream world and the world of adventure. In determining the sensorial qualities of space for activities within the institute, the arrangement of elements which contribute to sensory stimuli are considered based on the model of attention and awareness discussed in the theoretical framework. This model is used to describe how sensory information is perceived in the immediate and marginal environments of a selected spaces in creative departments.

The particular source of sensory stimuli to be placed in each category of this model represents the intensity of the chosen stimuli as previously discussed. In case of the proposed institute, data collected from co-researchers is used as the basis to specifically determine which sources are selected. The varying intensities of sensory stimuli required, are given by the described atmosphere of the place, in which the activities of each stage of the creative process is situated. Not only is the intensity and position of the stimuli potentially derived, but this also provides

information about how different spaces relate to each other and thus how they can be situated. The figure below shows how data from co-researchers is to be used.

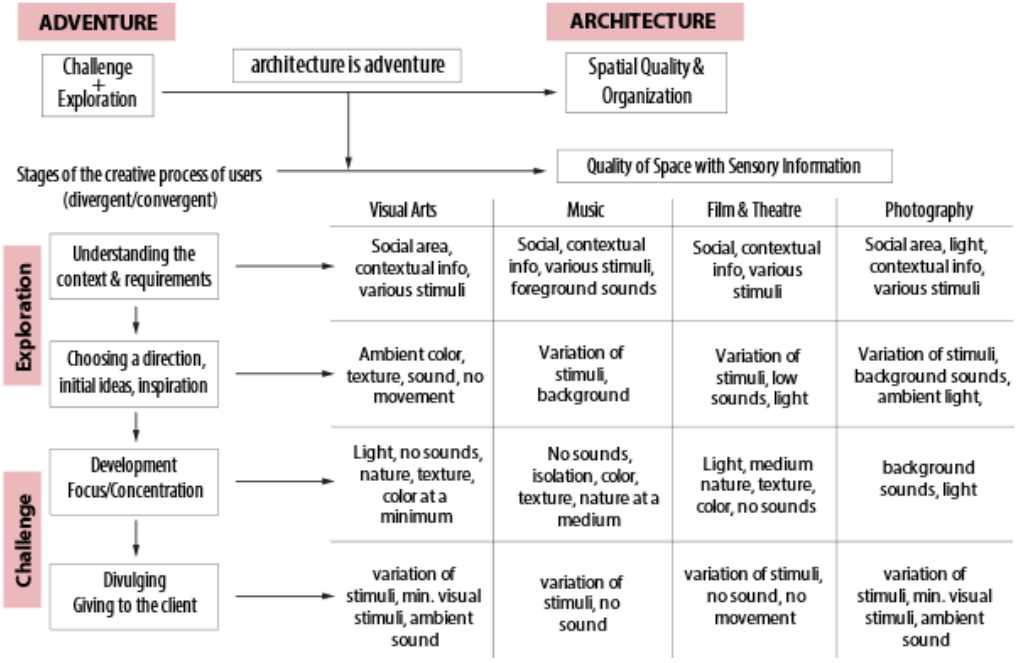


Fig. 4.24 Place of research results in the concept (Private Study,2020)

Physical landscapes of the adventure world are used as the source of tangible information for analogical transformation in the design situation. This refers to ideation of forms and characteristics of physical elements. The type of landscapes to be referenced are based on the existing landscapes from the context of Guyana (Fig. 4.25). This source reflects physical, sensorial and cultural data about people and place to be used in making appropriate design choices.

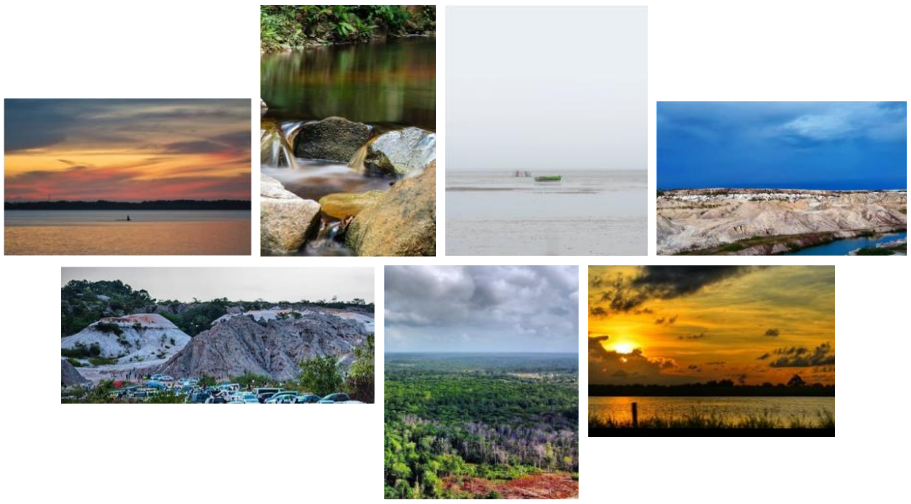


Figure 4.25 Existing Landscapes in Guyana (Haywood, 2020)

The image below shows the relationship between the main attributes of the concept and the architectural aspects to be explored in the development of the design. The information presented in colored boxes or highlighted represent the expression of the preceding concept in architectural syntax, while the arrows show the connection between aspects of the concept. The experience of the user is the central factor which connects the concept of adventure to architectural syntax.

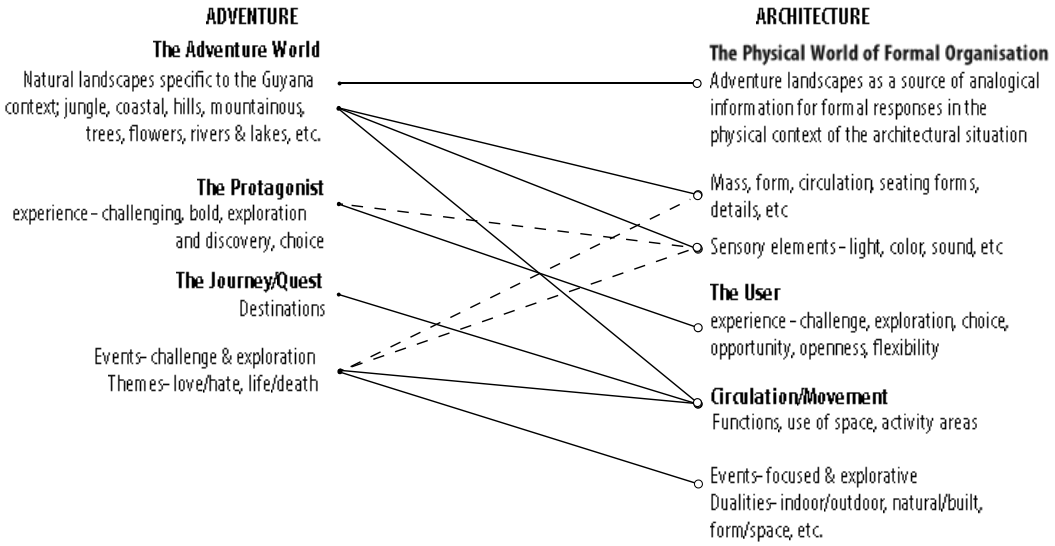


Figure 4.26 Analogical representations of the concept in architectural syntax

CHAPTER 5
SCHEMATIC DESIGN

Following the mapping of elements in the domain to domain transfer, the concept is applied following a top-down approach which is underlined by the big idea; architecture as adventure. The schematic design reflects preliminary design propositions beginning from a holistic view of the design proposal; architecture as adventure. Potential moments for architectural situations are proposed through ideation focused on the previously chosen aspects of design exploration. These are placed in connection with highlighted aspects of the concept, design criteria and design techniques utilized. Each situation presented is evaluated and selected to be arranged in further development of the final proposal. The figure below shows main considerations for the design developments from the concept, the relationships between each aspect of design exploration and the conceptual sources used for deriving tangible moments in each aspect.

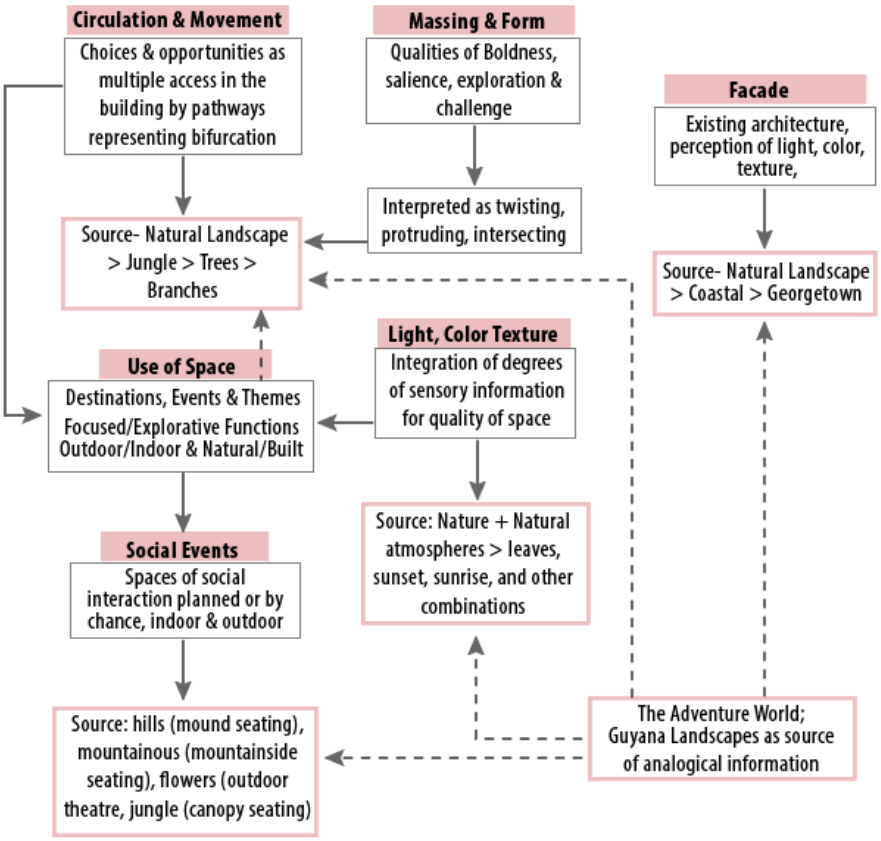


Figure 5.1 Connections between design developments and conceptual sources

5.1 Propose Moments

5.1.1 Bifurcation

Aspects of architecture discussed under the topic bifurcation are circulation, use of space and massing and form of the building. Criteria regarding the experience of space in settings conducive to creativity suggest exploration and wondering as an important factor. This posits that the user is given the opportunity to choose different paths and destinations with regards to movement and access. The same is presented by the concept of adventure, wherein the protagonist is faced many choices and optional destinations.

In tangible terms, this ability to choose can be reflected in the idea of bifurcation, which is a fork in a path leading to two separate destinations, such that multiple bifurcations would represent access to more places. Therefore, the concept of bifurcation is used as the starting point to derive scenarios in the aspect of circulation on site and in the building. The relationship between circulation, use of space and a derivative form for the building is implemented using existing nature as a tangible source in the concept

1. Circulation and Use of Space

As seen from the concept of adventure, the ‘journey’ or storyline in the is reflected in the movement of the user through parts of the building. The main functional spaces of the institute are seen as various destinations in a journey, and the path to these destinations determine the circulatory system of the building.

With consideration to movement, paths have multiple bifurcations along the way and provide options for movement between spaces. This gives the user the perception of making choices along the way, although knowing where the path will end does not hinder the presentation of unexpected experiences along the way. The following possible approaches to circulation are identified with reference to circulatory systems presented in the precedent study.

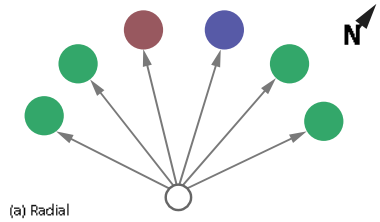
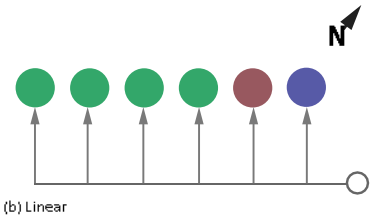
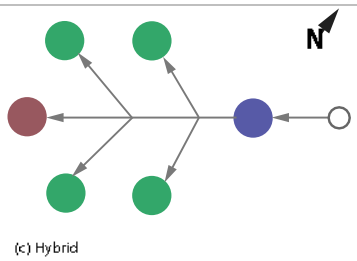
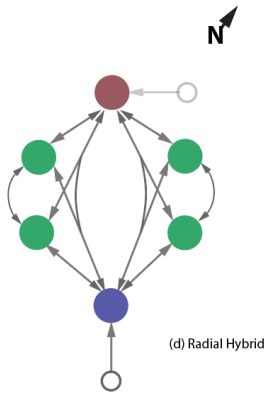
Pattern	*Description*
	Access is easy and direct between selected spaces and the access point; this central starting point gives a balanced distance between the main point of departure for accessing each department. However, there is difficulty with access between departments being much too far apart on either side.
	The access is directly located along a central linear path from the access point. However, the distance between the access point to the last department is also a considerable distance apart, therefore induces longer walking time for foot traffic.
	A hybrid approach combines both the radial and linear pattern, reducing the distance from the two furthest destinations. However, while the walking distance is reduced, the connectivity between each building still results in limited access.
	The radial hybrid is a combination of multiple radial patterns. It is designed such that each department has access to each other and also access to the other buildings. The other buildings also have direct access to each of the creative departments. Further, potentially adding an access point toward the north makes access more flexible.

Table 5.0 Potential approaches to circulation

Analysis of Circulation and use of space

The radial hybrid fulfills the need for flow and continuity in movement and access throughout the building. With the main access points to the center of the site, walking distances can be significantly reduced between the various functions of the building and exit/entrance points become more flexible.

The journey of the user through the building is reflected in the bifurcations as a way of presenting choices in the form of paths to access various destinations of the building. Given that the entire building is connected in movement, the explorative aspect of the movement in the journey, seemingly never ends in this option. One potential threat of this pattern is the possibility that potential users possibly do not make use of all the paths. However, this presents an opportunity for creating focal points at bifurcations so continuously grasp the attention of the user.

2. Massing and Form

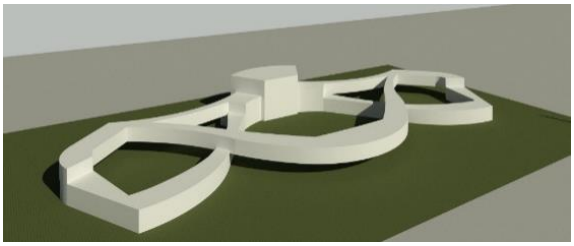
With consideration to the access and connectivity portrayed in the circulation and use of space patterns, the idea of adventure is further revisited to align with deriving the massing and form of the building. Here, the journey to different destinations in the adventure is reflected by the movement and access to different functional areas of the building. The main source for tangible references to develop concrete ideas is the cultural context of Guyana and elements of nature in Guyana as the adventure world, reflected by the concept. The bizarreness and incongruity seen in both dream worlds and fantastical adventure worlds is also considered. Heterotopic thought is used as a thinking tool for combining ideas which support the idea of mystery associated with adventure. From precedents studied, the qualities of boldness and salience in form and mass are combined as a feature of the theatric entertainment accessible in the building, with the formal academic learning also enabled by the facility.

Outdoor space in the design is particularly significant for introducing natural, sensorial events into the proposed design, creating the best settings for potential social interactions between users to achieve exploratory aspects of the creative process. Thus, indoor spaces, most categorically represent predominantly technical aspects of the creative process and the atmosphere generally needed for focus, concentration and solitude or privacy. The dualities of the indoor and outdoor spaces are seen as the building and its landscape. Considering these ideas in terms of layers, awareness is given to the cycling or looping stages of the creative process which enable access between these spaces.

a. Exploration - Option 1

The bifurcations in the circulatory system of the building is reflected in the form and mass through the use of analogy. From the existing cultural context, the artistry of traditional weaving with *'tibisiri'* is used as a tangible source of analogical information to create the form and mass of the building. Social spaces are filled into the loops created by the intersecting forms of the building's mass. Each department of the building is viewed as a separate destination, the massing and form of each main department is expressed in its individual design with each department having its own distinctive character as each dream scene of theme in adventure is distinct, yet connected.

Table 5.1 Development of Option 1 massing and form

Massing and Form	Transformation
  	Continuity and flow presented by circulation patterns related to the use of space is reflected in the flowing and looping form of the building. The building's mass is interlaced with the site, with social spaces in the loops of the building. Separate departments as destinations have an individual identity defined by individual aspects of each creative art. The building is oriented along the east-west axis to maximize views from and toward the building in the eastern direction.

Source: Private Study, 2020

Analysis

The transformation so far expresses the general idea of flow and continuity defined by the selected circulatory patterns. The potential for outdoor social spaces is created within the 'loops' of the building, so that there is space for the interplay between types of activities. The climatic and functional aspects of the building are also considered, having the photography and visual arts department located closer to the botanical gardens, viewed as a serene landscape. While the music and film departments are located along the south, so that the socio-cultural aspect of the residential area, is symbolic to the type of material extracted from everyday life as is usually represented in cinematographic and musical works of art.

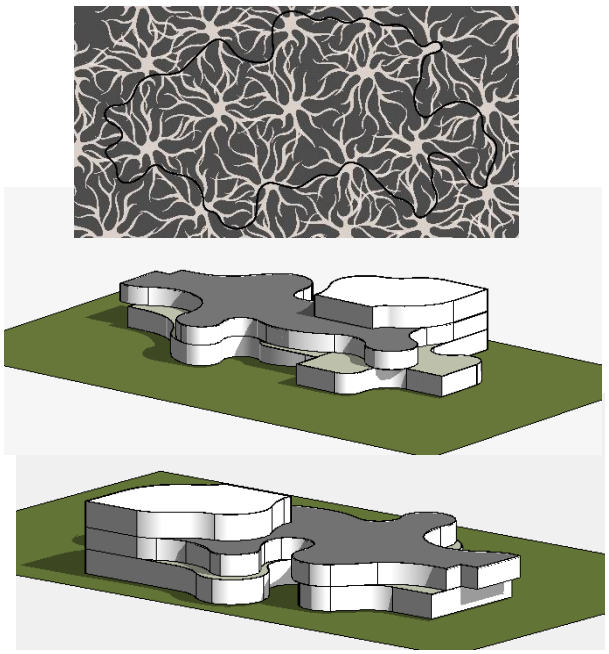
Further, having individual identities of each building reflect incongruity and brings chaos into the heavily geometric form. While the sequential flow and connectivity is achieved in the massing and form of the building, the overall view is a very ordered perception and potentially weakens the incongruity previously expressed. Hence, necessary considerations to reflect the chaotic nature of dreams and the trials and challenges that must be endured in adventurous journeys.

b. Exploration - Option 2

From the adventure world in the concept, the form of the building is derived from considering the tree – an element of the existing natural landscape of Guyana – as the tangible source of departure for ideation. Roots of trees are usually in communication with each other, through linkages between other roots, fungi and other plants transmitting information and nutrients about the environment. The different departments of the institute are thought of as the roots of multiple trees in a jungle, such that building is considered as network of trees. The form follows outlines of root structures which create the building curvature along the perimeter. mystery and incongruity in the massing and form of the building is represented the irregular shape of the form. Heterotopia is used, as curvilinear shapes are combined with sharp lines to achieve incongruity in the form of the building.

The main theatre and administrative areas fill the ground floor area, with main departmental areas spanning two floors. while the main theatre space itself is the highest point of the building on the third floor.

Table 5.2 Development of Option 2 massing and form

Massing and Form	Transformation
	The departmental areas for functional use are each seen as the place of a tree, while the places where the roots reach and entangle with each other are considered as the circulatory areas on the ground floor of the building. Spaces of greenery in natural vegetation can be placed indoors to the ground floor. So that the place where the 'roots' of trees meet, act as the main circulation and social space.

Source: Private Study, 2020

Analysis

The main strength of this design is the ground floor level which is particularly dedicated to social interaction, with potential for incorporating green open spaces. These spaces would act as the main circulation areas and access areas to the floors above. This representation is very organic and presents an unusual incongruity which contributes to a heterotopic and bizarre feeling of inconsistency and possible absurdity.

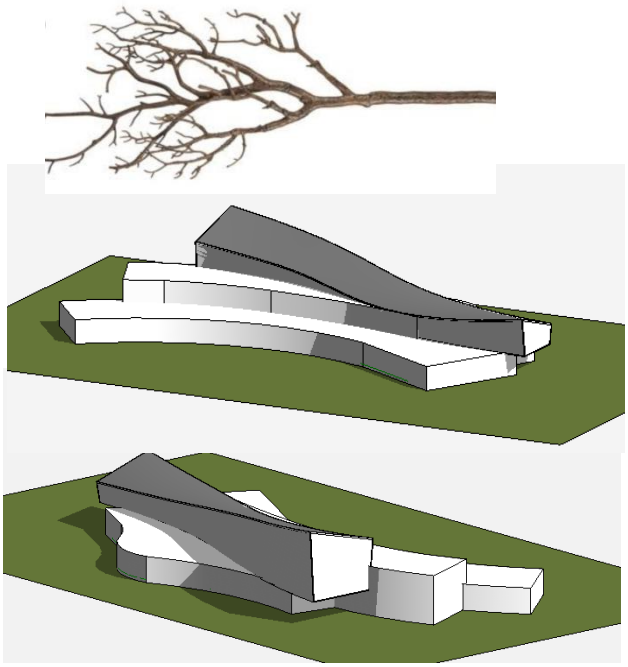
The horizontality of the building is pronounced but is interrupted by the multiple curved areas of the perimeter. The circular parts of the building's perimeter also enclose external space which can be used for spaces for social interactions. The building's mass however, seems very 'heavy' on the site, while visual perspectives of the building can be improved for better sight lines to the site. The incongruent feeling of the building, may also be potentially off-putting to users or visitors.

c. Exploration - Option 3

The third option is also derived by the use of analogy with the form of trees. In particular, the bifurcations that are created by the protruding branches of the tree represent continuity in circulation for access and movement in the building. It represents ‘opportunity’ and the presence of exploration. In this option, the upper mass of the building rests on the lower forms, and protrudes upwards and outwards. Twisting form of the mass also seems to protrude downwards from another perspective, fulfilling the incongruity and boldness to be reflected in the building’s mass and form.

The most salient point of the building is the highest point which accommodates the main theatre area on the third floor. On the same plane towards the opposite end is the administrative area as the main entrance to the building on the second floor. The ground floor area and second floor area of the two lower masses accommodate the other functional creative departments.

Table 5.3 Development of Option 3 massing and form

Massing and Form	Transformation
	The building form expresses opportunity, through considering multiple options provided by bifurcations as seen in tree branches. A bit of mystery or excitement is represented in the twisting nature of the roof which protrudes saliently on both ends. The forms seamlessly intersect and merge with each other, bringing continuity to the building’s form.

Source: Private Study, 2020

Analysis

The main strength of the massing and form is the potential of opportunity that is expressed in the unusual form of the building. While the curvature of the mass presents interest to the building, and layered/tapered edges are incongruous, the building does not seem to be unpleasantly off-putting. The sight lines toward the building all result in visual perspectives of interest, from all cardinal directions. The orientation of the curvilinear sections is perpendicular to the sun path and is a potential threat to the integrity of thermal comfort in the building. However, it also presents as an opportunity for maximizing daylight in functional parts of the building. Additionally, the shadows cast on either sides of the building during daylight hours may be sufficient for reducing thermal radiation in the building.

5.1.2 Layering & Accident and the Unconscious

The design of the building's façade is approached through the technique of accident and the unconscious, under which the ideas of surrealism and heterotopia are also features. To develop a visual image of the façade's potential design, the architectural context of Georgetown along with the landscape feature of the concept of adventure are combined. The coastal landscape contextual to Georgetown is a flat plain, where buildings have a consistent height with little variation. This is used as the tangible source under the 'landscape' feature of the main concept to develop the building's façade.

Figure 5.2 Existing landscape context Guyana (Haywood, 2020)

Building Façade - Exploration

This approach is considered as accidental and of the unconscious because the results of the formal arrangement derived for the building's facade is chiefly controlled by the image acquired. To acquire an image, the architectural and coastal landscape of Georgetown is studied from photographs. An aerial photograph of the coastal plain showing the outlines of buildings, driveways and general shapes of trees is selected. The image is then abstracted to identify the salient visual lines, shapes and colors communicated by the building and landscape elements shown in the photograph. The resulting image is then used to represent possibilities of facades that can be used for the institute, with variations which can further refine the idea.

The facades represented below, show different variations for potential physical applications, where colors and shapes are further analogized. The grass of the image can possibly represent the wall of the building, which can be cladded, with rooftops represented as colored windows. Another variation would represent the image as a curtain wall with vertical fins and shaped voids which wraps and shades the building. While the external walls beneath the building are painted in select colors so that the color bleeds through. Further, the textures can be inverted, while the shapes can be subtracted or extruded around the façade of the building. This transformation is shown in the images below.

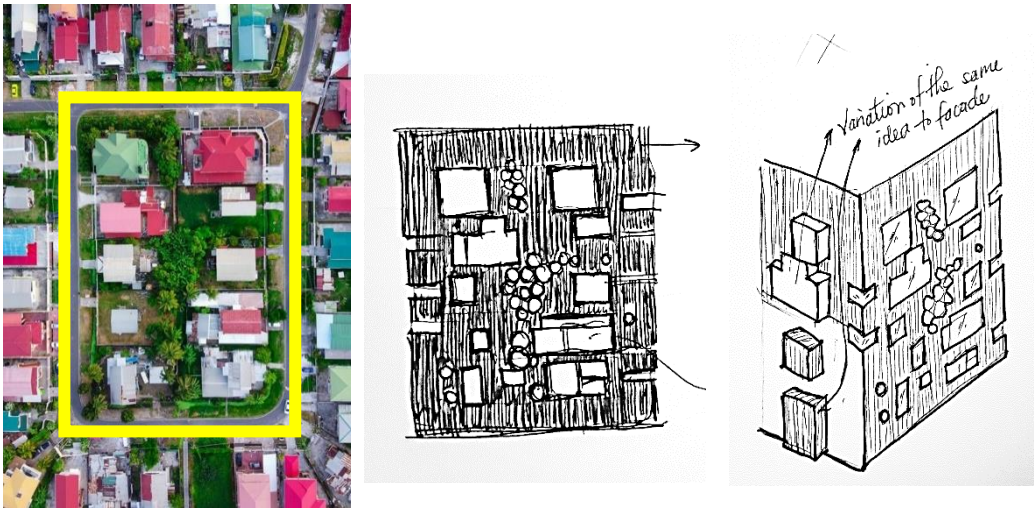


Figure 5.3 Transformation, considering layering and heterotopia

Building Façade - Analysis

The idea presented for the façade of the building, has the potential for further variation in how it is represented, and is also an almost inexhaustible source for varying the patterns. This is because many aerial photographs can be taken and abstracted for this specific purpose. Since the variations can be increased, they can be applied to different parts of the institute's façade. In this way, the building maintains a sort of unseen order and continuity, while the chaos is present in the different variations expressed.

The idea also presents layers of meaning, from the source image. Since it would make the building a true expression of the current cultural and architectural context of the city. Yet, the variations suggest that there are multiple paths of development and growth for the creative community. The unity in diversity of the people is also reflected, in that, shapes derived from roof tops are actual home of the people. This expresses the diversity and openness of the creative institute.

5.1.3 Social Engagement using Analogy

The response to social interaction is based on the explorative aspect involved in the creative process and the same as reflected by adventure. Relative to the concept, social spaces can be seen as destinations for exploration, for play and relaxation or a destination needed for a state of mind which requires focus and concentration.

The main source for generating tangible ideas for proposing social spaces is from the 'landscape' feature of the concept of adventure. This feature of the concept is utilized and limited to the context of natural element and landscapes in Guyana. The most appropriate sources of tangible information are used as analogies to reflect the formal arrangement of spaces for social engagement. The considerations for social spaces are, dense areas, sparse areas and secluded areas for varying degrees of social engagement. In addition, to the landscape as a source of tangible form making, other considerations are made to the cultural context for symbolism and meaning.

The site is used as the primary location for activities predominantly geared at exploration. In areas closer to the building, the spaces for mingling are made to service large groups of people. Places of quiet and serene areas are placed beyond and in between these larger areas, such that persons may have an option of choosing the degree of social activity suitable to their needs. The paths to the outdoor recreation area are situated based on the internal circulation pattern and can be seen as an extension of the concept of tree branches. Here, the paths are seen as extended branches of a tree, where the limbs form footpaths and the leaves and twigs form the planned social areas. The forms which are seating and gathering places for social engagement are explored and discussed below.

1. Canopy Seating – Option A

The consideration starting point for the main social space is a regular seating area, as with the contextual culture, social interaction is paramount. The usual sitting places around the town, though not many, are design as mini 'benabs', raised over the surface of the ground. One key aspect is the openness which allows free air flow and also the raised level. Within the cultural context, persons prefer seating that is raised above the ground. While most homes in the city utilize verandah for relief from the imposed climate, this has become a significant element in the social lifestyle of citizens. Another aspect of play considered from childhood, where most children climbed and explored fruit trees.

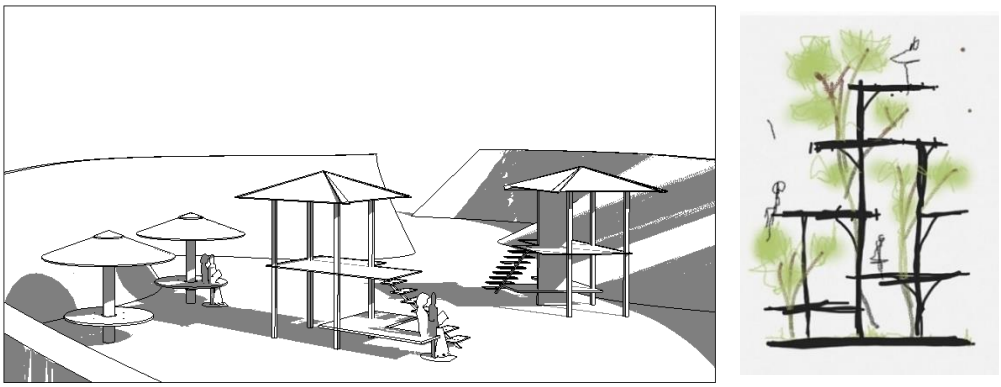


Figure 5.4 Canopy seating as social space

Thus, the consideration of layering, in that seating need not be limited to a singular dimension. Therefore, the idea of a vertical extrusion of the social space is

considered. The analogy of a tree in the jungle is considered as a further point of reference. This is then intertwined with vegetation or medium height trees, which can give some depth the social environment. This transformation of the social space is shown below.

2. Outdoor Theatre – Option B

The third defined social space serves the purposes of playful drama and singing activities, or as an informal seating area. The idea is derived from considering a circular theatre as a flower. More specifically, the victory regia lily is the national flower of Guyana, and this image is used to transfer analogic information concerning the actual circular theatre. The transformation of this analogy is shown below.

Thus, the petals are seen as the seating area for the theatre, which provides a unique arrangement with uninterrupted views for each person seated. The center stage is raised, while the entire space filled by the theatre in sunk into the ground changing the contour of the existing grade level. So then even passersby have an uninterrupted view of the activity on hand. The speakers' words would be pitched towards the audience, yet because the theatre is sunken, the contours provide a small buffer for any noise generated.

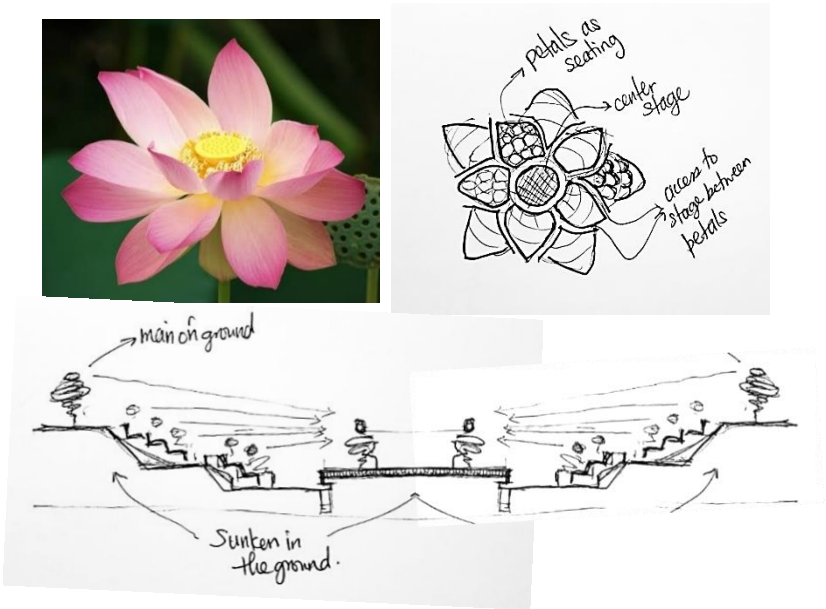


Figure 5.5 Sunken Lily Theatre as Social Space

3. Mountainside Seating - Option C

The mountain side social space is based on mountainous regions in densely forested areas in Guyana This is considered for vertical movement connecting two floors of the building, with available seating area. The idea is that people also meet along stairs and this idea presents a space off the ‘path’ of the ‘mountain’ which the interaction can go on uninterrupted. The space can be adjusted to suited any area between two floors, acting as a dual function element. It can also be placed in other locations to maximize space in vertical seating particularly for indoor settings.

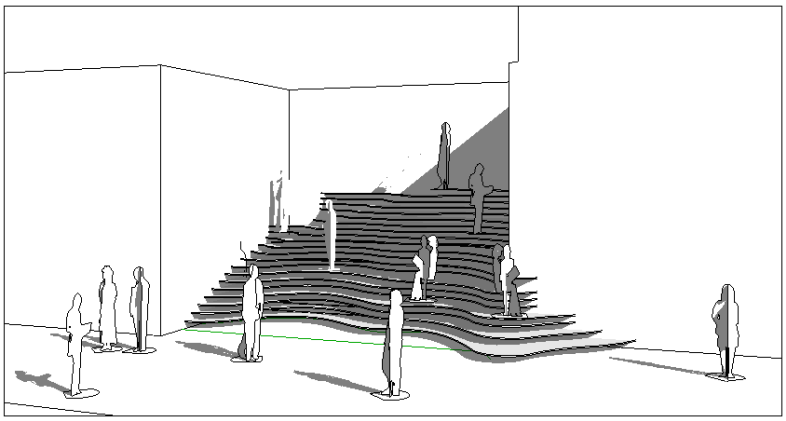


Figure 5.6 Mountainside Seating as social space

4. Circular Mounds - Option D

Option D can be adapted for use in both indoor or outdoor situations. The hilly region is considered as the starting point for generating the idea. The ‘mound’ is derived as seating for social interactions with a degree of privacy, since the area for sitting faces outward from the center. The seating also provides multiple levels of lines of sight, two optional levels for seating planes.

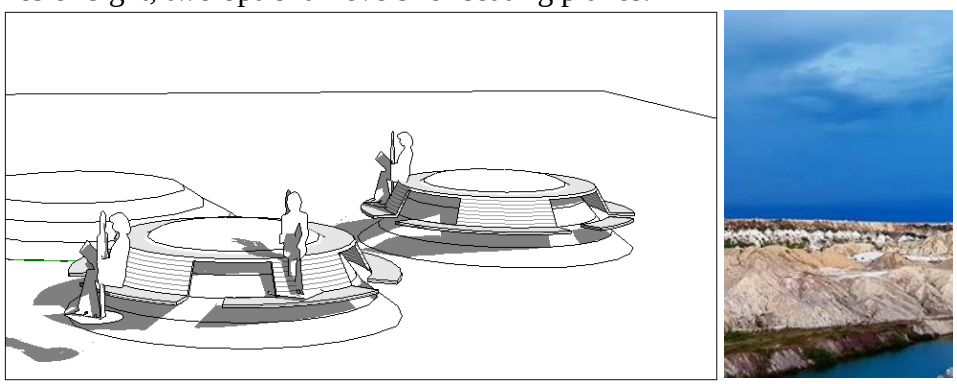


Figure 5.7 Circular mounds for seating

5.1.4 Sensory Delight using analogy and contextual information

The intensity of sensory stimuli is managed throughout the building depending on the activities done in a given space. So that over stimulation does not occur in places of highly functional activities, or vice versa; under stimulation in places of exploration. This approach reflects the two ends of the spectrum of sensory stimulation, where higher levels of sensory information is associated with spaces for the explorative phase of creativity. On the other hand, lower levels of stimulation are identified with spaces where high degrees of focus and concentration are necessary.

The external environment on site is used particularly to convey a feeling of playful delight, since it can potentially communicate to the user a variety of sensory information. The primary source of sensory information for human perception is based in the visual field and so colour plays an important role in communicating the functions of spaces to be used. Colour and light, texture and sound are combined based on the results of the interviews with which the quality of space during stages of the creative process is deduced.

The context of Guyana, most particularly Georgetown, is used as the main source of information regarding sensory experience (see figure 5.6). Such that the colours chosen not only reflects universal ideals on the effects of colour, but also reflect Guyanese culture, symbolism and meaning.

Figure 5.8 Colour, Georgetown context (Haywood, 2020)

Embedded in the day to day activities of Georgetown is an array of intense and playful colours, predominantly reds and yellows which draw visual attention to sellers. Black, greys and hues of blue are neutral colours which are worn in combination with brighter colours and patterns, with blues mostly associated with work and a cool attitude. The existing buildings of academia are mostly limited to hues of grey and crème with little highlights and accents from brighter colours, while bureaucratic places are dressed in whites or cremes, with minimum lines highlighted by solid muted colours. A more playful array of colours is given to recreational areas such as shopping and entertainment. These are combined with materials; predominantly, painted concrete, timber, aluminium sheets and shades of asphalt.

5.2 Arrange Moments

After analysis of the proposed moments, the situations which optimally fulfil the needs of the design proposal are refined and arranged in schematic developments. The architectural situation in response to the design for creative spaces of the visual and performing arts institute are discussed based on the aspects of design exploration. The initial design criteria are considered as the foremost evaluative basis of the design and consider the highlighted aspects of design exploration. These include the presence of the building on ground, the efficiency of circulation, access and functionality, the use of sensory elements and the natural environment.

5.2.1 Circulation & Use of Space

The main idea of circulation and movement in the building, is based on the concept of the storyline in adventure fiction and the functional needs of the creative departments and other use spaces. This is executed by extracting information from the structure of trees as a feature of the adventure landscape. The tree and its branches are used to derive the formal approach to circulation paths in the building. The main entrance can be seen as the trunk from which other access and circulation are derived. Such that both floors of the building can be accessed from the main entrance, horizontally and vertically by means of a staircase. These main paths then

eventually bifurcate at varying points on the ground floor giving access to the creative departments.

The building utilizes three major entrances/exits and can also be accessed by minor access routes located in each creative department. The main entrance for most users of the facility is placed at the north-eastern end to maximize access, by having a close distance to the main entrance of the site. The second major entrance is located at the opposite end, the location of this entrance is particularly considered as the main access point to the main theatre auditorium, gallery and library. So that, in the case of a scheduled production, audience members can use a separate entrance without interrupting the flow of activities in or related to the creative departments. The third access point is located towards the center of the building and gives an ease of access to functions in the central part of the building, as shown in the image below. With the given arrangement of corridors and circulatory spaces, the initial approach to circulation and access to functions is fulfilled. Thus, creative departments can be accessed from one to another, while the main administrative space and main theatre functions can also be easily accessed by the departments.

1. Site Plan

The considerations for the site include the orientation of the building for maximizing thermal comfort in the given climatic context. The environmental criteria including sensory information and traffic/pedestrian data are considered aspects of site planning.

The building is located predominantly on the east-west axis of the site, covering the central area. The horizontal curves of the buildings perimeter which make up the form are aligned perpendicular to the path of the sun. While this maximizes the daylight entered into the areas along these sections, the thermal radiation affecting the building also increases. Therefore, walls and windows to the eastern and western sides of the building are treated with passive cooling techniques to reduce negative impacts of the heat, while maintaining optimal lighting. This is particularly visible on the western façade where a curtain wall is used on the second and third floor of the building to assist with protection from high exposure to thermal radiation.

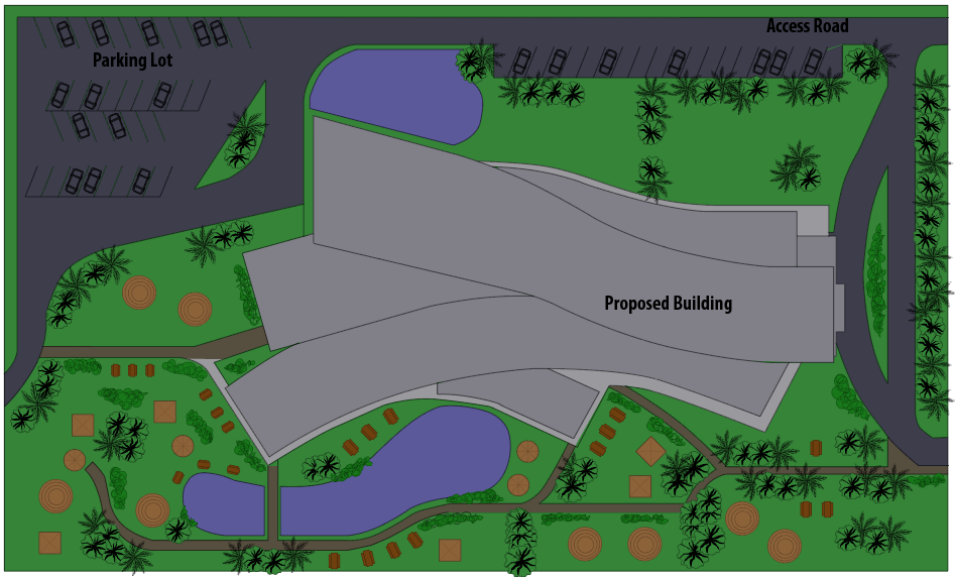


Figure 5.9 Site Layout

The site utilizes space of too parking lots to the south eastern and northern portions of the site. The main entrance from the Homestretch Avenue access road, allows access to both parking lots and return to the main road. These two parking lots serve the users of the building on a day to day basis, while being adequately located for public access. The second parking lot is placed closer to the housing scheme toward the south of the site, such that it can be used by members of the community after regular hours of work in the day.

While the building itself considers efficient circulation patterns, the site also helps to facilitate the explorative needs of the users. Therefore, the site includes footpaths which support pedestrian circulation needs in access to both roads which are parallel to the site. The footpath also serves as a pedestrian path for the members of the community who wish to access the main access road beyond the site.

2. Building Layout

The creative institute accommodates several functions as an institute of visual and performing arts, both for advanced learning and creative productions accessible to the public domain. The planning of spaces within the building is dictated by the chosen layout for circulation and access in the building, as movement is related to the sequence and flow described in the concept of adventure. Further,

environmental concerns such as influences thermal comfort in the functional spaces of the building are considered. Moreover, the climatic context of the area potentially affects the quality of functional spaces in terms of lighting, and may influence other sensorial considerations such as color, textures and sound. The origin of the conceptual mass selected as the formal design of the building is has been generated from the circulatory and use of space considerations in the building. The point of entry to the building is to the north east boundary, since this location is oriented to the main access road of both vehicular and pedestrian traffic as shown above.

The formal arrangement of functional spaces in based on the need for access and circulation between each creative department and the associated functional spaces. The sequential flow of the storyline of adventure fiction is the main idea of the concept. All main functional spaces are seen as destinations in the journey of the adventure, such that the entire functional space and circulatory system of the building can be likened unto a map of locations in a piece of adventure literature.

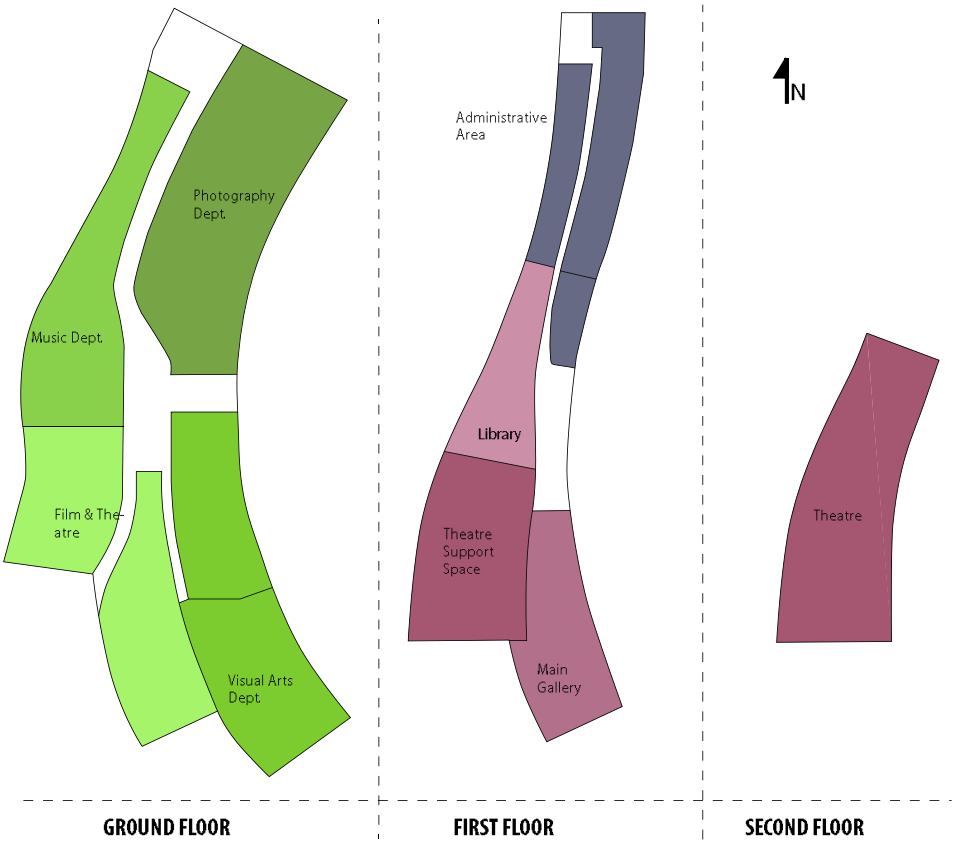


Figure 5.10 Layout of Main Functional Spaces

This approach is executed by analogically considering the branches of a tree, where the branches lead to several functions layered on the three levels of the buildings mass. The four creative departments are located on the ground floor, as the main area for creative activities. The shared space on the ground floor allows access to and from each creative department. Each department is arranged with consideration to relates functions, the outdoor environment and sensory data provided by the environment. Other functions such as the main theatre and gallery area, the library, the operations offices and main administration area are located on the second and third floors.

Creative Departments

The photography and visual arts department are located toward the eastern longitudinal section, so that most of the functional areas can be bathed with natural lighting during the morning hours. The private studio sections are located on the inner section so that they receive light from the open space, which in turn receives light from the outdoor areas. The gradation of natural light is associated with the quality of light in relation to the task and preferred amounts of sensory stimuli. In visual arts and photography, daylight is especially preferred for refining details and recognizing true colors.

Figure 5.11 Position of the Four Creative Departments on the Ground Floor

The film and theatre department is located on the south-western section of the building. This department is located closer to one entrance of the building, placing it in close proximity to heavier pedestrian activity and view of social

interactions. The musical arts department is located along the north-western line of the building's perimeter. Since, maximum daylighting is not particularly preferred, the department is particularly shaded for most hours of the day. The afternoon sunlight which enters the department is then used to produce visual pleasure when layered with colors in the open spaces of the areas.

The creative departments on the ground floor, utilize split vertical levels to maximize the use of space. This is done by increasing the floor to ceiling height of the ground floor to facilitate mezzanine floors. This provides clear visual information relative to how the functional spaces are perceived. High ceiling heights and open areas within the department provide the sense of opportunity and possibilities of the space communicated by the concept, the larger scaled spaces accommodate higher levels of perceived sensory data. Larger scaled elements and spaces are techniques used in creating visual images for adventure fiction. These open spaces therefore, represent the explorative phases of the creative process as reflected by an indoor setting.

Figure 5.12 Connective Mezzanine Area throughout all Departments

By way of contrast, areas located on mezzanine floors have lower ceiling heights and are layered. These are research areas, storage, preparation, private work spaces and the like, which are areas which support creative activity. These areas represent the type of environment presenting lower levels of sensory stimuli, so that attention can be given to tasks which require higher levels of concentration. The

mezzanine floor area also presents the opportunity of spaces fit on the range between high and low sensory stimulation, and act as a middle ground between these extremes. This type of environment is more ambient, and allows the user to an optional environment suitable to the state of mind needed for the task at hand.

The creative departments are connected to the second floor by three main staircases located to the center and ends of the building. On the second floor is the main administrative area, which leads to the library, main gallery and support spaces for the main auditorium of the theatre above. The administrative area is located to the north-eastern end and is fully accessed by way of a staircase from below.

Figure 5.13 Split Level Mezzanine Floors in Visual Arts Department

This leads to the central area, which is another access point from below also by way of staircase. This central staircase accommodates a heavy flow of pedestrian traffic because of its central connection. This area is also considered as a place for sensory delight by the addition of a skylight on the second floor, which sheds light into the cavity below. The library is particularly centrally located in the quiet areas near the administrative space and gallery. While the gallery is located in close proximity to, and above the visual arts department. This placement makes it easier for the movement of display items to and from the main gallery and the visual arts or photography department.

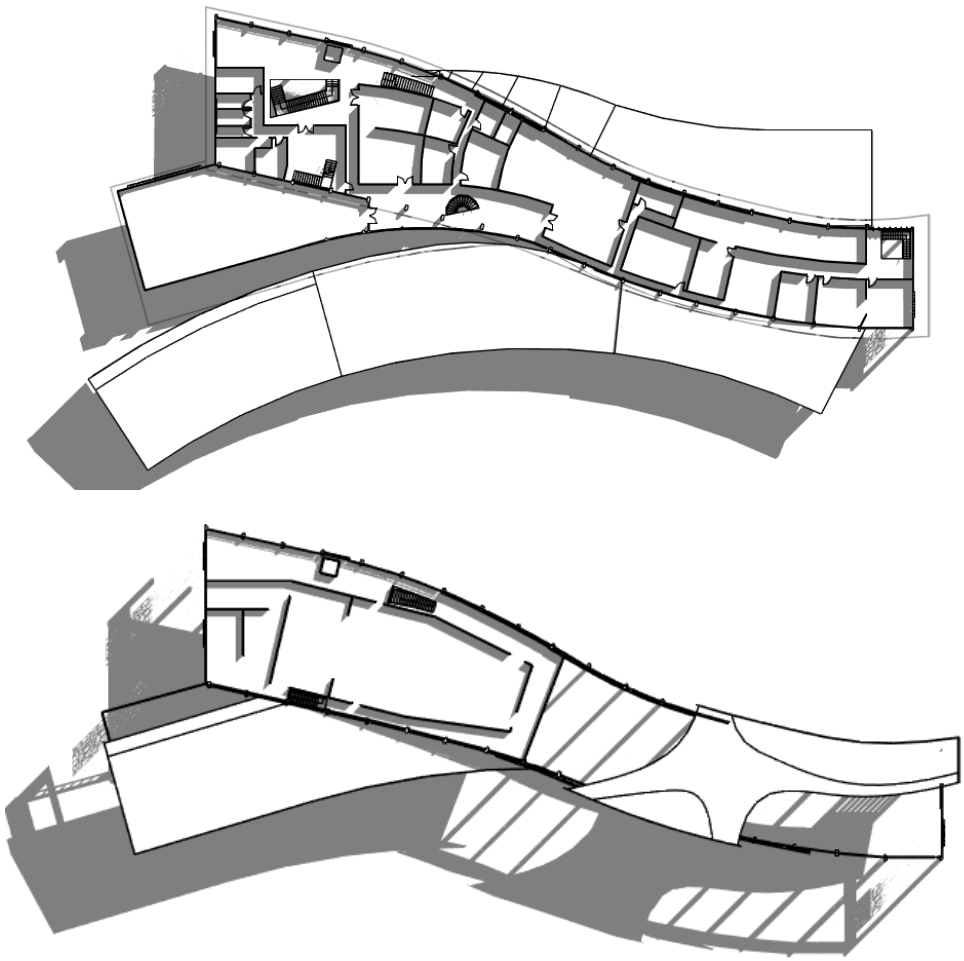


Figure 5.14 First and Second Floor Level

Likewise, the third floor on which is located the main auditorium is aligned with the film and theatre department below. This section of the building has direct access to the third floor from the ground floor, by way of staircase and elevator shaft. This allows for optimal flow of pedestrian traffic and ease of circulation, since it can also be accessed internally from the second floor below. The salient lift of the roof on this section of the building provides adequate space for auditory control of sound in the auditorium. From an external perspective, the function of this space is potentially communicated by the mass of the external form. The access area to the theatre is pushed toward the perimeter so that more sensory delight is added to the experience of pedestrian on this level. This arrangement also presents a panoramic view of toward the center of Georgetown and phenomenal activity as presented by the setting sun to the west.

3.2.2 Sensory Consideration, Social Engagement & Nature

Social Space represents the potential of social interactions in the spaces of the building, as seen from the results of interviews as an important aspect contributing to creative environments. These spaces are planned and formally considered, though the entire building can be seen as a place for person to person interaction. As the user embarks on the adventure in the building, there will be many spontaneous meetings with others.

Figure 5.15 Open Space in Photography Department

This is particularly facilitated by the connected mezzanine floor area, which allows movement throughout all departments. This facilitates the experience of interaction with people and potential events throughout the building. Each department has floor spaces which facilitate open area activities. The mezzanine floor areas can be accessed by way of stairs from each of these open spaces. The connection between departments by the mezzanine floor space is shown in an example in the image below.

Within these open spaces of the department, the mountainside seating is also utilized as a connective element between the ground space and the mezzanine space. Such that they are directly connected to the mezzanine floor area, and small open areas on the mezzanine floor where space for sitting is available. However, this is

only an alternative to access to the mezzanine level, other normal stair systems are also provided.

Figure 5.16 Main Circulation Route

Additionally, landscaping is done on the site as a major feature of exploration for users, providing outdoor spaces of potential social interaction or private encounters with nature. These spaces are weaved between footpaths around the site and also provide sources of sensory delight, which contributes to a state of open-mindedness. This encourages users to wander, reducing the amount of focal attention that contributes to disassociated thought patterns in creativity and presents opportunities for social engagement.

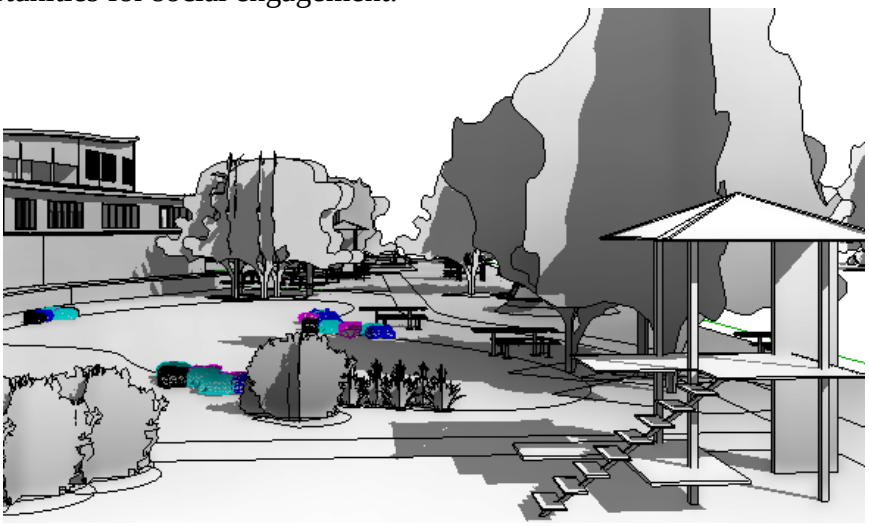


Figure 5.17 Social Spaces Integrated with the Natural Environment

The external environment of the site is seen as the main source of exploration in approach to the design proposal.

5.2.3 Massing & Form

The presence of the building on the ground is addressed by the approach to the design of the massing and form of the building. Based on the options presented as moments for the development of the building's form, option 3 is chosen as the most suitable for the design of the creative institute. The massing and form fulfil the conceptual approach to the design through its layered masses, which seamlessly intersect and join, showing a kind of sequential movement to the building. The form also reflects the varying storylines that intersect and join as they do in adventure fiction.

Figure 5.18 Massing and Form of the Building

The twisting and elements of saliency in the uppermost mass of the building reflects the flow of storylines which are present opportunity, surprise and challenge along the journey. This form fulfills the general criteria for design as it has a very

salient presence on the ground. The building combines both functions of an institution of higher learning, while offering spaces for public access to productions. This is also reflected in the form and presence of the building, where there's a separation in the function represented by the protruding upper mass and elegant curves on the lower levels. The angular form above fulfills the criteria of theatre buildings which are particularly salient and demanding of attention, while the rest of the building is unassuming, utilizing earth tones and less intense colors to represent the formal nature of an institution.

Materials and Facade

The main façade of building utilizes a bright yellow onto most of the external wall area of the uppermost mass of the building. This is to draw attention towards the building form, to encourage curiosity and a desire for exploration. The lower levels of the building are finished with wooden panels as representation of the origin of the concept. It also helps to bring some perception of familiarity to the usual form of the building, since much of Georgetown's architecture is based also on wood.

Figure 5.19 Western and Eastern Façade

The upper mass of the building is supported by steel trusses and composite columns. The two lower levels of the building fill the space beneath the upper mass and is also partially supported by it. To the western façade a curtain wall system of passive shading elements protects the western wall from heavy solar radiation.

5.3 Proposed Design

Given the final arrangement of elements to support the architectural situation, the design criteria and conceptual response is discussed for the final proposal. The Visual and Performing Arts Institute is the object of design, as a facility with academic functions and larger gallery and theatre spaces for sharing productions with the public. Since the main focus is centered on the user, the main approach to the design is the consideration of subjective experience of individuals who use the building, in relation to their perception of the physical setting during the creative process. This approach allows the users to share their preferences and perceptions of the physical setting suited for creative activity.

The presence of the building, circulation and function, sensory considerations and use of natural elements have been the general criteria, as found from studying the precedents. Special criteria were also considered from the interviews conducted with potential users of the building. These are the focus on movement as an agent to function and opportunity, the role of social engagement and sensory information in the physical setting. Additionally, it was found that these criteria operate as features of exploration and opportunity and evaluation as challenge. The application of these criteria has been supported by the concept of 'architecture as adventure' derived through design techniques of questioning first principles reduction, as described by Plowright (2014). The concept is chosen because of the many similarities between the experience of adventure and the creative process, and its degree of tangibility which allows analogical and metaphorical transfers.

Movement as a main criterion, is seen in combination with circulation and use of space, and access. The primary goal is to create an experience of freedom and flexibility, giving users the ability the choose the spaces that best suit their mental process, as found to be of critical necessity in the study. This necessity of freedom and flexibility is recognized by Evans & McCoy (2010), who also recognize the aspect of challenge, which contributes to the complexity and intricacy of the building to make its character interesting. The arrangement of spaces for movement and use of space was expressed both analogically by the use of 'trees' as a source of tangible information; and metaphorically by the use of 'bifurcation'

to interpret the ideas of opportunity that are reflected in freedom and flexibility. The implementation of larger and open spaces, with higher ceiling height further represent exploration and openness which is associated with divergent thought (Chan, Nokes-Malach, & Timothy, 2016)

The focus on movement as the first response of the design lays the foundation for the massing and form of building, as well as, social and sensory considerations. From the study, it is found that some instances of social engagement are perceived as sensory and physical elements are sometimes perceived as static. While another perception of social situations contributes to other parts of the creative process, such as evaluation through feedback or direct seeking of information. Therefore, the design focuses on presenting opportunities for social interaction and engagement, whether planned or occurring by chance. This allows a collaborative social environment that potentially has a positive influence on the creative process (Bagheri & AliNouri, 2015).

The aspect of sensory experience particular to general sensory elements such as sound, texture and most particularly color, is highlighted as a significant aspect of creative spaces from the study of precedents and literature. These features come into focus during instances of peaked interest or necessity and otherwise fade into thematic field and marginal awareness (Bader, 2015; Gurwitsch, 2010). This is potentially the reason why the individuals, when interviewed, where not particular with a sensory element unless necessary for a function, or if it became a distraction.

The sensory aspects implemented in the design, include the use of water, color and texture as visual stimuli. Ponds are positioned on site, near areas of social engagement, to introduce a feeling of freshness (Holl, 1994), and potentially assist with mental clarity, and easing stress as suggested by Bagheri & AliNouri (2015). Additionally, it provides s cooling effect to the flat site during the hottest hours of the day, into the cooler hours of the evening, therefore helping to regulate micro temperatures around the site for a comfortable thermal environment (Augustin, 2009). The materials used include conventional materials of concrete and steel for structural purposes, yet timber is integrated as a natural material associated with sensory stimulation. The pavements of brick, roads of asphalt and grass on the flat

land of the site, provide the user with different haptic experiences. Having different densities, the grass land is contrasted with pavers which do not reach directly to each seating area, therefore allows the user to experience a haptic change while in movement.

The façade of the building features a deep yellow-orange color on the uppermost floors which is provocative, cheerful, radiates openness and is also arousing (Meerwein, Rodeck, & Mahnke, 2007). It is subject to change in perception of hue and saturation during different hours of the day. Such the setting sun also reflects warmth in the late afternoons and in the morning hours it is the brightest in the day. This color compliments the boldness characterized by the mass of the building, and communicates the explorative feature of the creative process and deeper, the institute. Within the local context, the color is unique and striking, potentially keeping its character with the passing of time. The color is also symbolic to the context of nationalism in Georgetown and Guyana at large.

Figure 5.20 Main Entrance to the Building

Colors, including other reds and yellows are also used on the façade of the wooden sections of the building as accents and highlights, which give the building some character but allows it's too keep its institutional identity. The colors used on the internal spaces of the building, have predominantly low saturation and light hues, such as lighter orange-yellows, peach colors in spaces highly functional spaces, which produce feelings of warmth, comfort and lightness. Particularly in corridor spaces these colors are made darker or brighter, so that the perception is

changed to heavier activity and openness. Ceiling space utilize muted and light hues of greys and blues for a sense of freshness and focus (Meerwein, Rodeck, & Mahnke, 2007).

The ponds, natural materials used on the façade and interior; and colors used, also contribute to the symbolism and meaning in the design within the local context. The focus of movement further extends to the external natural environment through the idea of adventure, where the feature of social engagement is essentially implemented. Recognizing the importance of social interaction, seating for social interactions is placed on the site, interweaved with access pathways, ponds, trees and natural vegetation. The natural environment forms a basis for the social culture of the institute, where persons can also interact with members of the public. The natural shading provided by the environment also contributes to a comfortable atmosphere that potentially encourages the use of these areas. The placement of seating is predominantly on the eastern side of the site, which is significantly shaded by the building during the afternoons. Additionally, this response is suitable for the context of social culture among the local people.

Figure 5.21 Outdoor Seating in the Natural Environment

With architectural situations presented above, the proposed design is evaluated against the initial criteria of the design situation. The aspects of the design explored fit into four categories, namely, the presence of theatre buildings; circulation and function; sensory considerations and the natural environment. These aspects further represent features such as the massing and form of the building,

circulation, function, and sensory and social considerations. The table below shows the degree of fulfillment of each of these aspects which were the focus of the design. The evaluation score is given based on the total number criteria fulfilled in each main aspect. The measurement for degrees of fulfilment of the design is represented by high, medium or low levels of implementation is based on the number of general criteria satisfied by the design within each aspect.

Table 5.4 Evaluation of Design Proposal and Criteria

Aspect of Design	***General Criteria***	***Application***		
		High	***Med.***	***Low***
The presence of theatre buildings (Mass & Form)	- A salient presence for theatre space. (shape of forms, use of vibrant colors to grab attention).	●		
	- Elegant and refined in shape/materials/color for academic areas			
	- Pronounced verticality/horizontality (Forms with elevated sections/points.)	●		
Circulation and Function	- Spaces for social engagement with access by main circulation	●		
	- Easy access to main functional spaces	●		
	- Presence of potential opportunities or experiences	●		
	- Visual connection to the outdoors	●		
Treatment of light, color and texture (Sensory Considerations)	- Moderate stimulation to 'challenge' spaces, light, consistent textures, color as accents or gradients		●	
	- Natural light, identifying textures, bright/ dense colors as accents/highlights/solids to larger spaces		●	
Site & Nature (Use of Natural Elements)	- Heavier consideration to nature	●		
	- Use of natural elements e.g. water in planned social areas		●	
	- Planned spaces for social engagement	●		

The following drawings represent the final outcome of the proposed design, they include 3d perspective images, floor plans, sections and elevations.

Figure 5.22 3D Perspectives

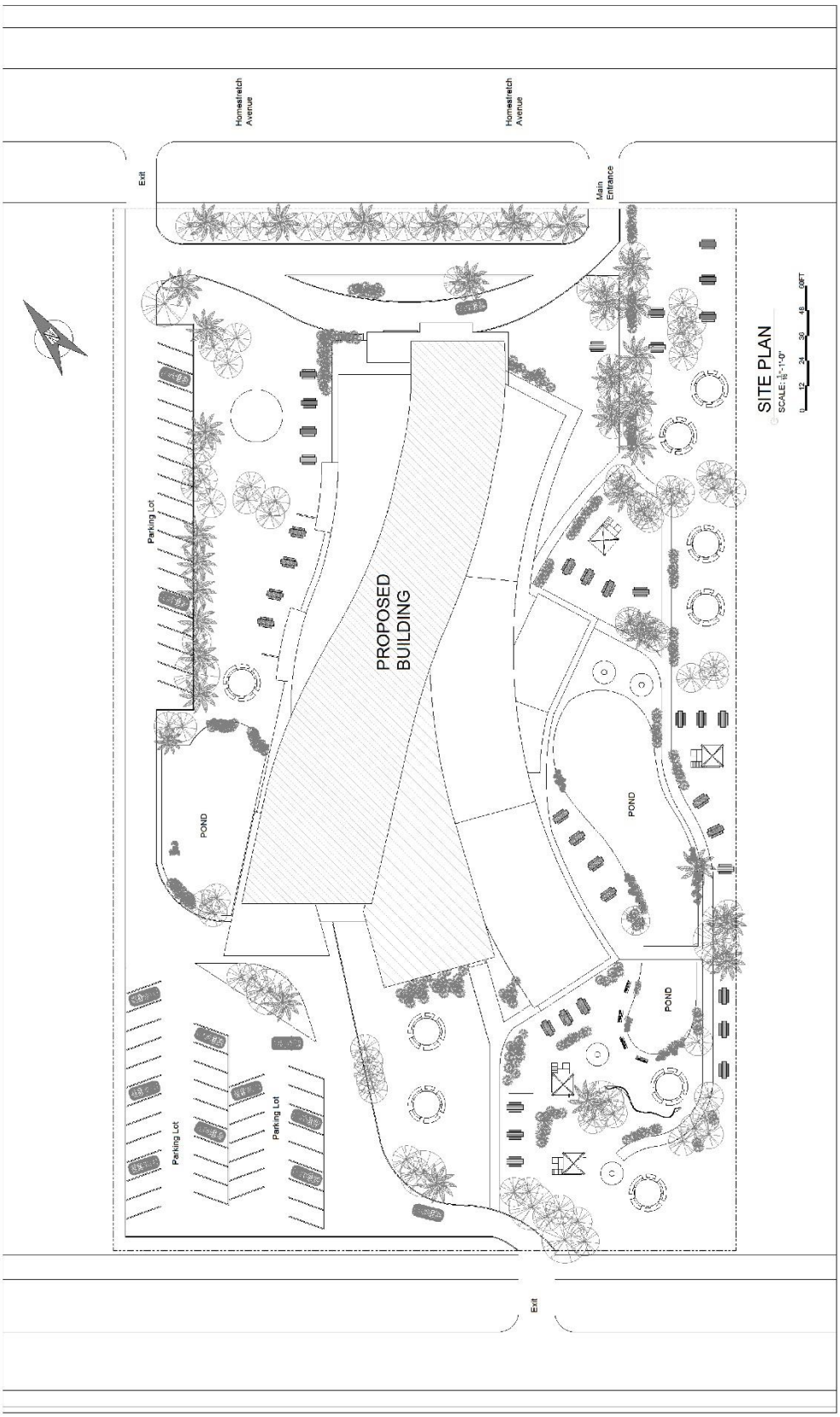


Figure 5.23 Site Plan

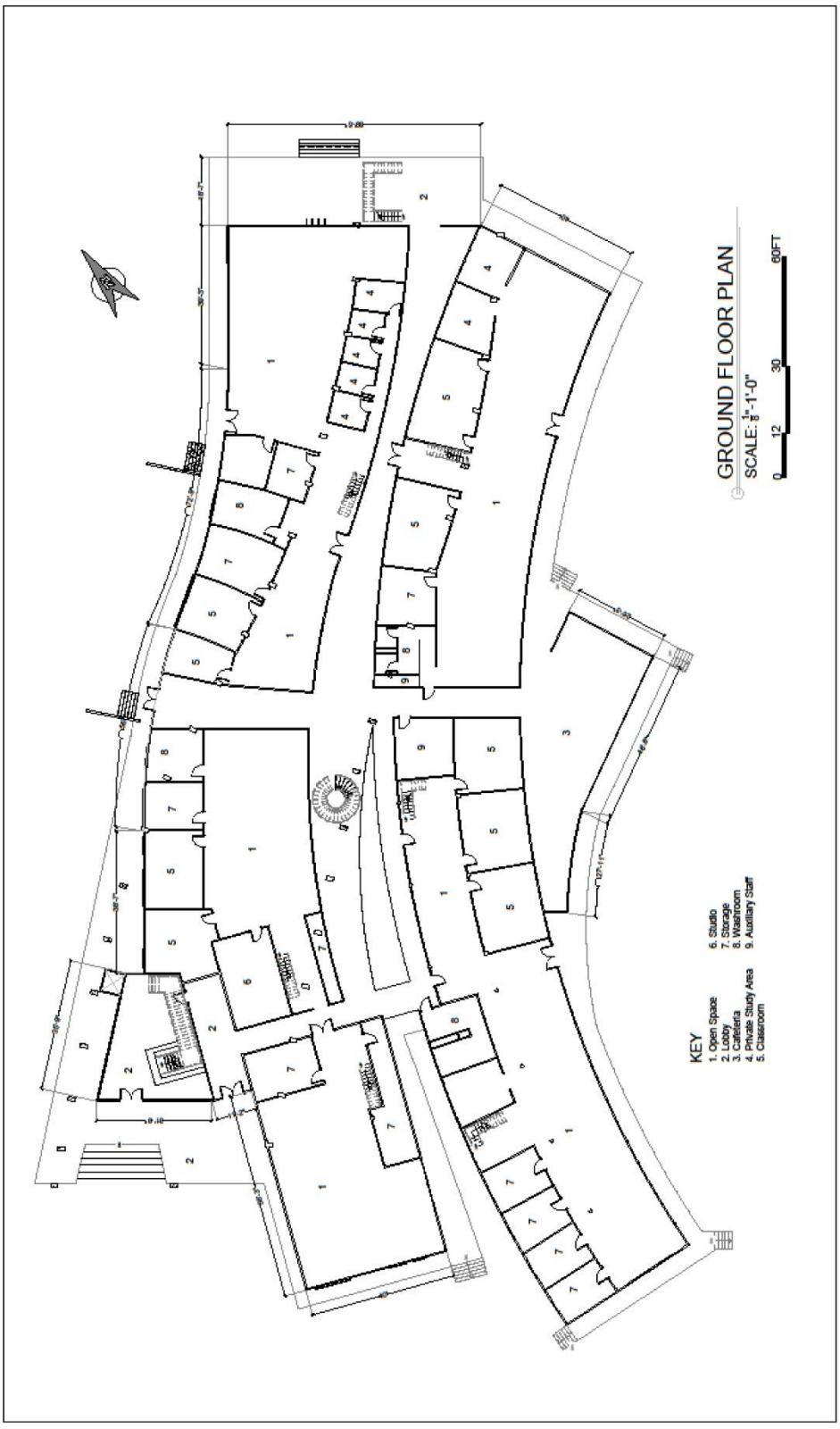


Figure 5.24 Ground Floor Level

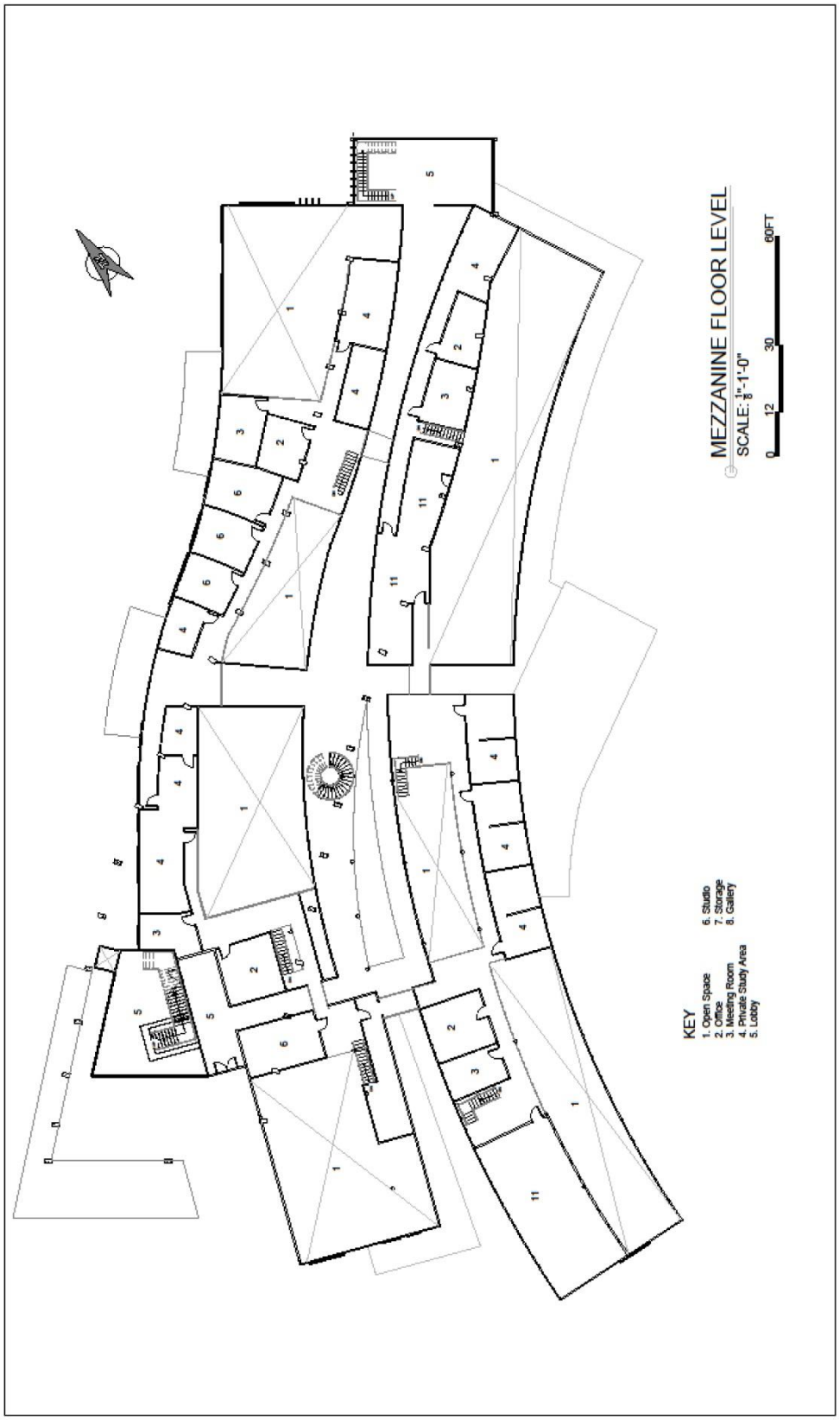


Figure 5.25 Mezzanine Floor Level

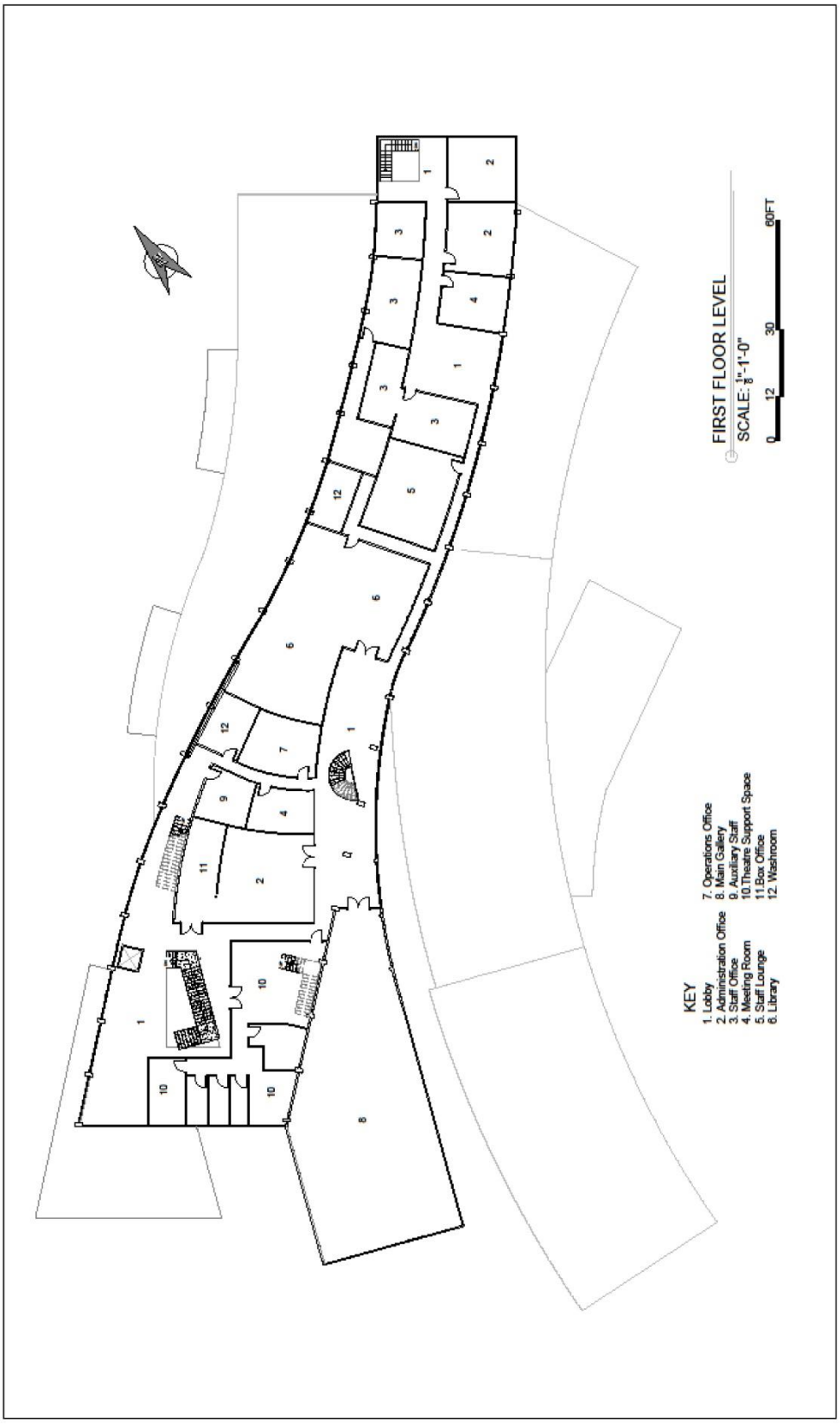


Figure 5.26 First Floor Level

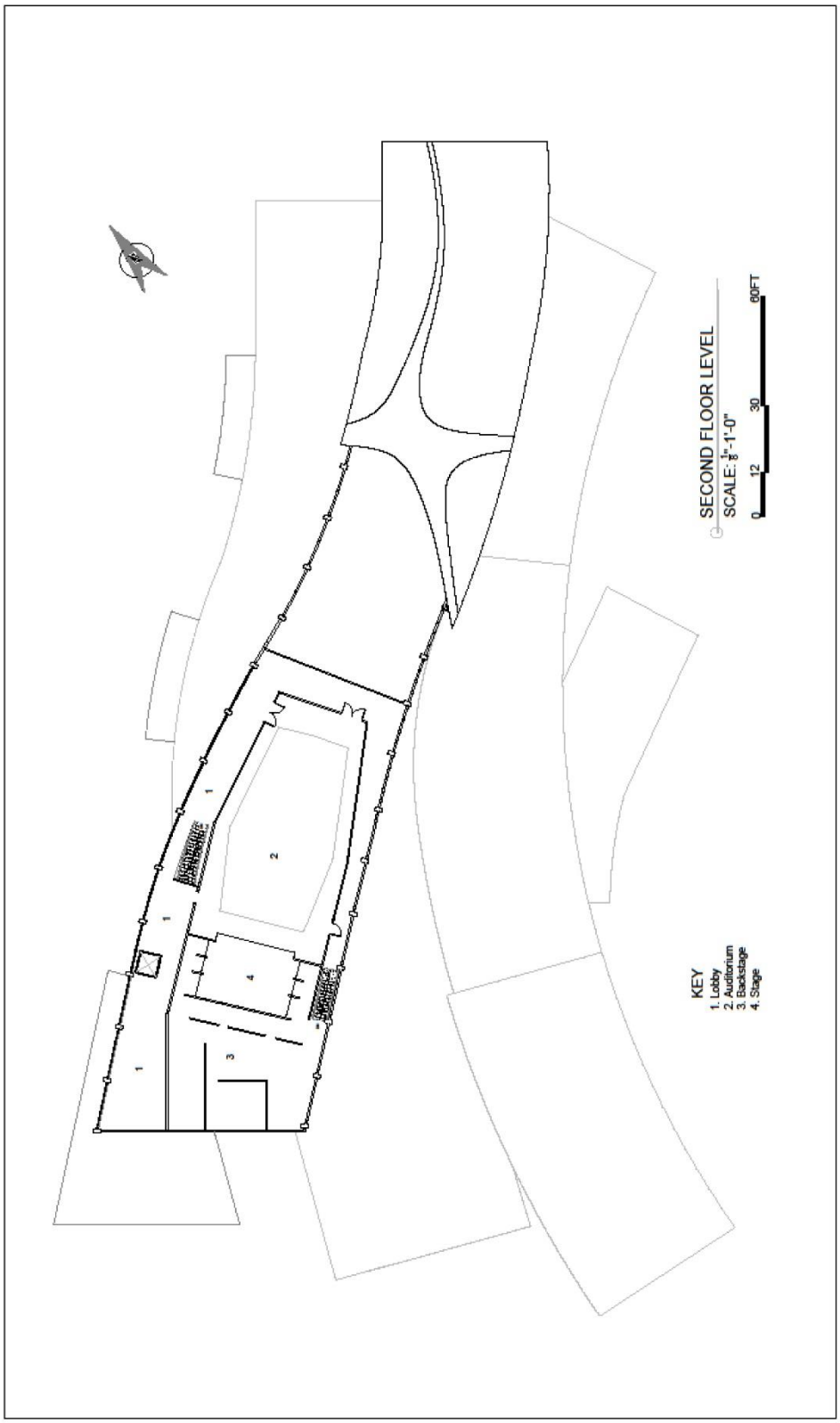
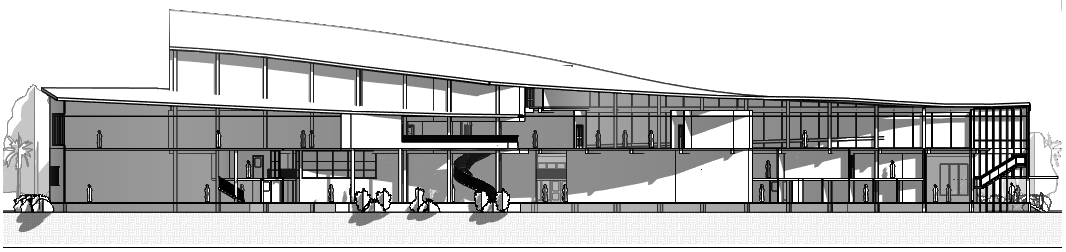
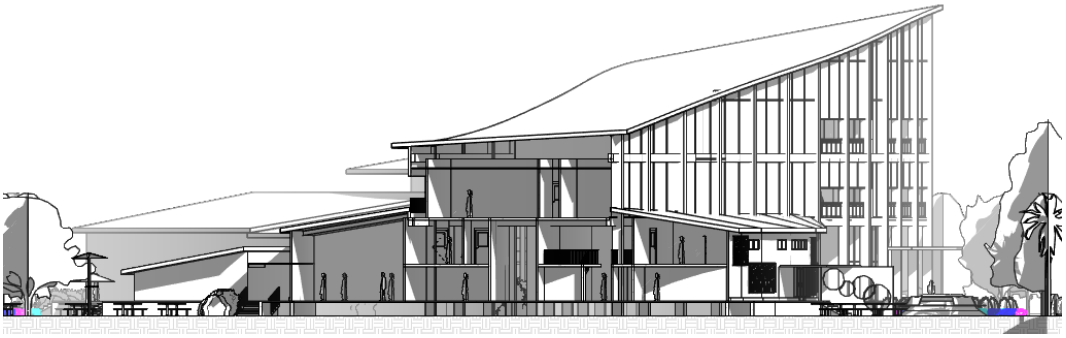


Figure 5.27 Second Floor Level

a). Section A-A



b) Section B-B



c). Section C-C

Figure 5.28 Sections

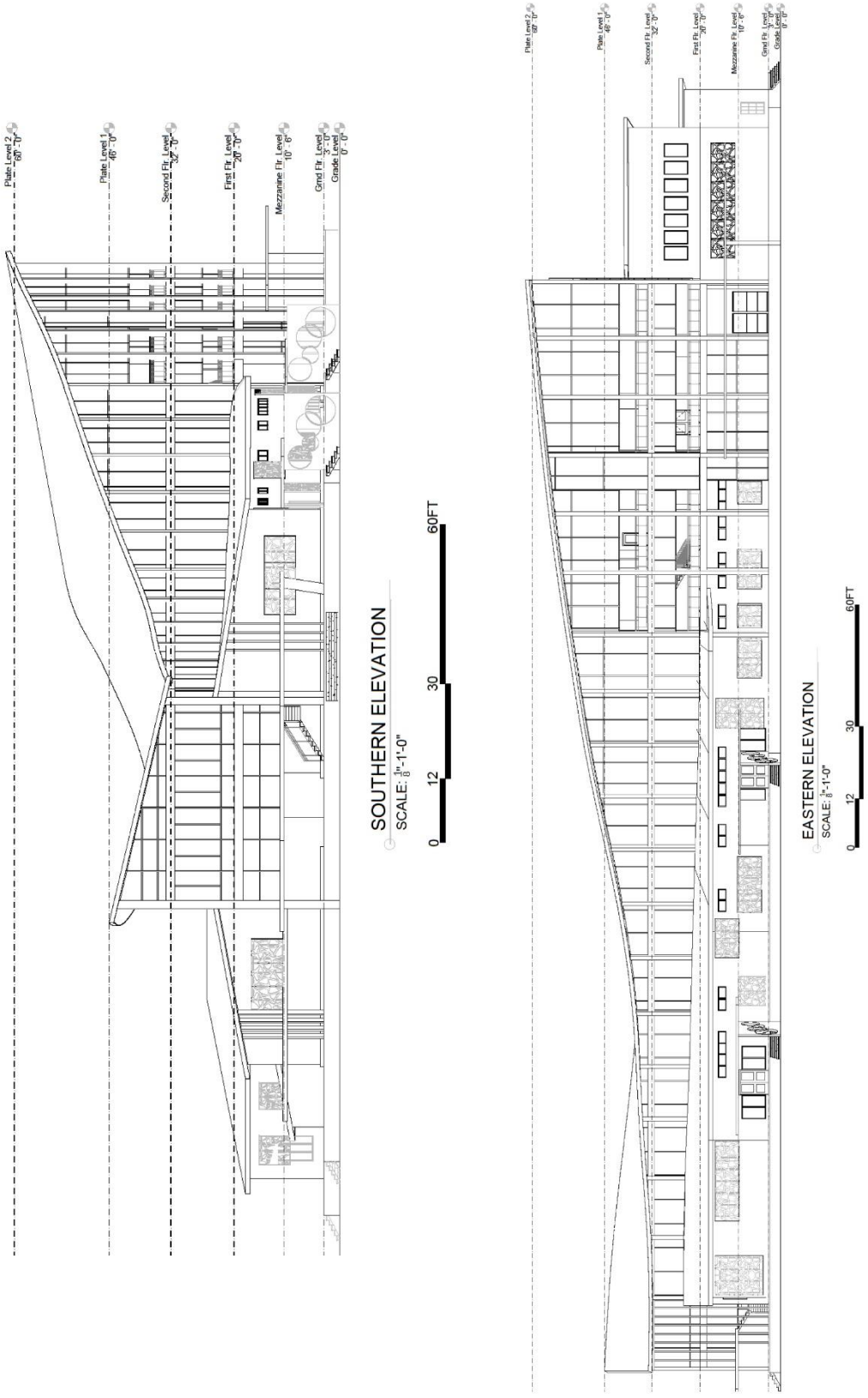


Figure 5.29 Southern and Eastern Elevations

5.4 Design Innovation

The precedents explored as the references to building of this nature showcase the various aspects of design which surround formal architectural elements and considerations. While the sensory aspect of these precedents is not particularly highlighted as an important aspect of design consideration, these considerations still influence the general design and experience of the finished building.

The most profound gap of design in buildings cited as precedents is the efficient use of the natural environment and consideration to the social environment particularly in buildings studied as theatre houses for entertainment. This is so chiefly to the focus on the main function of theatre buildings to the activity inside, dominating the user's attention. However, in a predominantly institutional building as the architectural situation, the external environment can also contribute to the learning activities of the users by being conducive to creative insight and stimulation. As seen in the precedents previously studied the natural environment is the least planned area for sensory delight in most of the buildings.

In a building to be designed with consideration to user's creativity, the social interactions between users is particularly important. Social interaction is seen as a hindrance to creativity in some cases, because it can be a source of distraction in various degrees. However, from the internal study conducted during interviews, it is seen that, the degree of social interaction and its presence in various stages of the creative process is the main predictor of its embodiment as a hindrance to, or assisting the creative process. To this end, the result of considerations to social space as an integration with the outdoor natural environment as suggested by the concept. Since both the indoor and outdoor environment provides spaces for social interaction, the user now has more control over the preference of space in relation to the state of mind required for mental creative processes.

The gradation in the availability of social space, and its predominant integration into the natural environment is used as the solution to the gap of design in precedents studied. This innovation provides an optimal experience of the building in relation to its conduciveness to the user's creativity. Therefore, social

interaction is especially combined with the buildings internal circulation system and externally through integration with the natural environment.

Innovation in the building's design reflected in the integration of an alternative circulation path is geared towards encouraging social engagement in the building. Since departments are usually separated, this alternative path allows access to each department. As destinations they provide a different environment and approach to ideas for the benefit of the user. So that their ideas may be informed or possibly inspired by the perception of various creative arts.

Figure 5.30 Integration of Nature, Sensory Elements and Social Engagement

Secondly, the outdoor environment is seen as a source of sensory delight which can be utilized for relaxation, 'play', and is the most optimal for exploration. The spaces prepared as spaces for social interaction are design based on the conceptual approach, using analogies from the local context of the natural landscape. This provide a range of seating options including normal seating arrangements. This outdoor area is made accessible from different areas of the building's ground floor, to allow for exploration and the transition to a different environment. Water features are integrated to serve as auditory and visually perceived stimuli, while serving as natural water collection features from rainfall. Colorful outdoor structures are also positioned throughout the external area, presenting visual stimulation and complexity to the outdoor system.

CHAPTER 6
CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

The design of the Visual and Performing Arts Institute, Guyana, is approached by first considering the user as central to design with the sensory capacity as the main point of communication between the user and the building. Aspects of design explored are necessitated by the building type, as an institute for higher education in the creative arts with theatre and gallery spaces which allow public access. With particular emphasis on creativity, movement and circulation within the building is seen as one major factor in the experience of the building. Sensory related systems, such as color, light and texture are associated more directly with the human sensory ability, however movement allows these senses to be accessible. Another aspect of the design proposal that appeared in relation to sensory user experience, is that of social interaction. Previous studies on social interaction have emerged and show that it may prove to be a hindrance or distracting. This study of the users in relation to creativity and the built environment shows that on some degree social interaction may indeed be distracting.

The principles derived from the exploration of this design proposal suggest that all the information gathered from the external environment can be perceived either as a distraction or a hindrance. Therefore, the solution to the design of creative spaces is to present a spectrum of options which would allow the user themselves to choose the preferred setting. These spaces would then provide the different levels of stimulation that coincide with the individual's creative process. While, there are other factors besides the external environment which influence creativity, such an approach makes it more likely that the individual may find the most suitable setting for their unique process.

The designs' innovation is focused on combining the aspects of social engagement with movement through the building; and with the natural environment which is also a source of sensory delight. Thus, options for planned or chance social interactions are presented throughout the building's experience both indoors and

outdoors. Therefore, the building's circulation system specifically responds to the potential need of spaces for social interaction. While open spaces are reflected in the building's layout, they are also reflected in the external environment, this is the same for private spaces both indoor and outdoor. The external natural environment is particularly used as a source of encouragement for social interaction while utilizing natural features to improve sensory delight. These features are explored through the concept of architecture as adventure help to create spaces for exploration and wandering in the proposed design.

The general approach to the design of the form and mass of the building is considered based on the intended perceptual information to be received by the buildings form. Such that, the final design adequately draws the attention of individuals utilizing the views toward the sight. Since the building functions predominantly as institutional the remainder of the mass on the lower floors suggest the elegance and formality associated with a place of higher learning. This also helps to balance any uneasy perceptions that may be attributed to the form of the building.

The integration of movement, social engagement and a focus on sensory stimuli as derivative themes in the design, reflect the importance of the first-person perception in interactions between the person and the environment. From the studies it is seen that the experience of phenomena in the physical environment during creativity is grounded on the perceived needs of the task at hand. The presence of affordances within the physical environment, which can potentially fulfill these needs, therefore creates the premise for exchanges between the person and the physical setting. For this reason, the application of phenomenological thought and methods is helpful to the understanding of human experience needed for human centered design.

6.2 Recommendations

The result of this design proposal allows for referencing of design for creative spaces in both theory and practice. It also shows that there is much work to be done in an understanding of the essential considerations in the design of creative spaces. This can only be understood through the testing of design considerations for

creative spaces. This work is limited in its approach most significantly due to the gap in knowledge concerning the influence of the built environment on human perception. As a wholly subjective experience, this may prove to be difficult since preferences of settings may vary greatly from one to another.

Considering the result of the design proposal, the particular recommendations for advanced academic and practical work are as follows.

1. The concept of ‘architecture as adventure’ is a rich source of information which can be used to further explore creativity in terms of a journey involving exploration, opportunity and challenge.
2. The design solutions for a spectrum of spaces which represent varying degrees of stimuli can be investigated in more depth through quantitative approaches to testing intensities of sensory stimulation.
3. Sensory delight seems to be perceived predominantly as visual aspects, while other sensory aspects such as kinesthesia can be studied further in depth. This would inform the application of the sensory ability as it relates to human perception of the environment and the design of creative spaces.

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APPENDIX I

VALIDATION OF DESIGN PROCESS AND APPROACH

Most of Holl's architectural works rely upon an initial idea which is further developed into a conceptual framework and the phenomenological position is taken as the main philosophical approach in different building designs. His conceptual framework formulates ideas based on the context of the design and can be derived from architectural, social, literary, mythical, etc. lines of inquiry. For example, The Museum of Contemporary Art Helsinki (see figure 1a), utilizes the phenomenological approach and conceptual framework based on the philosophical works of Maurice Merleau-Ponty. The design explores the relationship between nature and culture, object and space, movement and stasis, and light and material in an effort explore the subjective indeterminism of human experience (Yorgancioglu, 2004).

Figure 1a Museum of Contemporary Art, Helsinki, Finland

These relationships were explored through conceptual development of the idea of chiasm, of 'intertwining' of spaces which gave the building its general theme from which all other aspects of detail were derived. The use of the conceptual framework allowed him to explore not only functional needs but also the experiential quality of all the spaces. Here his attention was focused on the relationship between nature and culture, object and space, movement and stasis, and light and material. (Yorgancioglu, 2004). Other works of architecture which are also predicated on phenomenological associations oriented towards user

experience are the works of architects Tadao Ando and Daniel Libeskind. These works are derived from the formulation of metaphorical concepts which utilize physical elements, specifically light and texture to create unique experiences of space and form (Hsu, Chang, & Lin, 2015)

APPENDIX II

EXAMPLE OF PHENOMENOLOGICAL RESEARCH

1. **Phenomenological Analysis by Clark E. Moustakas** (Moustakas, 1994)

Transcendental Phenomenological Reduction (Textural Analysis)

In the process of explicating the phenomenon, qualities are recognized and described; every perception is granted equal value, nonrepetitive constituents of the experience are linked thematically, and a full description is derived. Bracketing, in which the focus of the research is placed in brackets, everything else is set aside so that the entire research process is rooted solely on the topic and question; Horizonalizing, every statement initially is treated as having equal value. Later, statements irrelevant to the topic and question as well as those that are repetitive or overlapping are deleted, leaving only the Horizons (the textural meanings and invariant constituents of the phenomenon); Clustering the Horizons into Themes', and Organizing the Horizons and Themes into a Coherent Textural Description of the phenomenon.

Imaginative Variation (Structural Analysis)

The task of Imaginative Variation is to seek possible meanings through the utilization of imagination, varying the frames of reference, employing polarities and reversals, and approaching the phenomenon from divergent perspectives, different positions, roles, or functions. The aim is to arrive at structural descriptions of an experience, the underlying and precipitating factors that account for what is being experienced; in other words, the "how" that speaks to conditions that illuminate the "what" of experience. How did the experience of the phenomenon come to be what it is? Describing the essential structures of a phenomenon is the major task of Imaginative Variation. Imaginative Variation enables the researcher to derive structural themes from the textural descriptions that have been obtained through Phenomenological Reduction. We imagine possible structures of time, space, materiality, causality, and relationship to self and to others. These are universal structural groundings connected with textural figures.

2. **Structural Description of the Creative Process and the Physical Environment considering the Gurswitch's Model of Awareness**

a. Photography

The initial stage of the process begins with a general assessment of the conditions of the shoot. The process begins*, "once I know more about the location that's where it starts, so it's either when I arrive at the location or when I have an idea of what is in the location".* The photographer describes the assessment of the physical conditions such as lighting, forms, colors, people and also the equipment to be used. Here, exploration is particularly focused on assessing the qualities of the given physical context, its limitations and opportunities, including those of the instruments at hand, to understand the affordances available in the environment in the specific context of the shoot. *Lighting is "first thing that would come to mind" or that "I would be aware of". "everything about the colours, including the objects that are there, the furniture, even the people in that space", "I have to know my gear and what I'm working with".* This part of the process also involves social situations with people, yet from the perspective of the photographer, this is based on the physicality and materiality of the people as components of a formal arrangement. *"you might have children … old people and you're thinking about all of that in the process, like how it's going to look for whatever I'm about to do", "depending on the situation, is where I decide which route I'm going to go and which direction I'm going to take, so it totally depends on the environment"*

This preliminary assessment therefore has a deep connection with the physical world; the creative activity itself is immersed in it. However, during random shots, these preliminary stages while taken into consideration are sometimes wholly unconscious actions. "*if I go out randomly … I would just shoot what comes to mind", "I don't know if I could explain that too much", "…it's just impulses".* The variables of the physical setting affect the feeling of 'presence' in the composition of the final production. When this situation has been understood and accepted, the course of action for shooting is chosen based on understanding opportunities of affordances in the context and the shooting begins. *"I accept what it is after a little while of being in it… so it's like I have adjusted to whatever situation it is and now I'm just going along with taking–".*

After shooting there is a clear change of the physical setting for development in editing. The following stages of development and evaluation arise during the editing of the videos or the images. At this point, ideas are to be refined and these stages require a setting which allows focus and concentration with no interruptions. However, the photographer also expresses that taking a break from this state and the eventual return provides new perspectives. This shows that there are times between sessions of directed focus which are important for letting the mind rest or wander, letting the mind disassociate.

The photographer emphasized a preference of the home environment because of the comfort available there, the silence and a certain control over the setting. The sensory cues in the physical setting which decrease focus and divert attention are considered distractions which do not support this stage of the process. These are the visual perception of moving bodies, such as other people in the immediate surrounding, and the salient sounds in the auditory environment, such as the ringing of a phone or having a phone conversation. However, listening to something related to the task, which does not require a response is not particularly distracting. Music can curtail concentration; however, it seems that as the mental state of focus and concentration is continuously maintained some sounds float into the thematic field becoming a part of peripheral perception. *"... the sounds fade, "even though they're there it's like if they're not so much there", "I get accustomed to it somehow"*. These responses to the auditory environment show that the type of sound preferred in this stage, must be rhythmic and ambient so that they are not hindrances to this state.

During the states of focus and concentration, the work is refined with intermittent reviews which make for an iterative stage during development. Ideas which arise are reviewed against the initial course of action chosen, until satisfaction, then the final product is then revealed to viewers. Finally, the finished product is disseminated to the public or the client, the product is free to be consumed in physical (such as a gallery) or virtual setting (such as online platforms).

b. Music

In this case, the initial stages of the creative process begin with writing the lyrics of a song or composing a melody through 'inspiration'. Writing the lyrics to a song for the musician begins by seeking to become familiar with the context of the situation before the main focus arises. Where a melody is provided, the musician seeks affordances present in the context of the track referring to its compositional elements. "*constantly listening to the track, I got an inspiration,".* When composing a melody, first initial inspiration is based on *"something I heard, or something that I've experienced or remember".*

This new thought is triggered by events and associated sensory cues which occur in the present embodied physical setting. *"I heard a track ... after I heard the track I remember something similar to it and from that moment that I remembered ... it brought a connection between something that I remembered or something that I'm listening to now, I got an inspiration to write a song".* This means then, that the musician is constantly storing information from the external environment outside of intentionally beginning the creative process. Therefore, all previously embodied experiences in the physical environment act as references for associations with later thoughts to form new ideas. At the point where inspiration seemingly occurs, the initial exploratory phases of the process seem hidden, but are done instantaneously, without the full awareness of the musician.

From this point of 'inspiration' the musician has determined the main focus or path for development, then transitions to a state where the process of development begins with 'locking in' to the vibe emerging from the moment of inspiration, after which, 'everything becomes mental'. "y*ou got to separate yourself from everything that's going on around you, to lock into it, to lock into the inspiration and the "vibe".* This statement also suggests the change of environment needed for the following stages of the process. Development continues through an iterative action of ideation and making decisions to select those most appropriate to satisfaction in lyric and harmony. *"... ideas keep coming and then for me, I do pick and choose, use the ones that sound good and it goes on".*

The physical setting described during this process is marked by a comfortable environment in 'isolation from reality', "*in that moment, at that time I want to be alone, nothing must distract me, I want to be isolated from reality".* Sensory cues described as being distractive are visual perception of movement or other significant auditory cues such as another song. Moreover, the musician prefers immersion into the auditory context which is under development. *"walking on the road with an earpiece in your ear so you wouldn't be distracted by what is around you".* This suggests that the musician is particularly inclined to be distracted by salience of auditory stimuli in the physical setting. The musician exploits the environmental affordances by adjusting the auditory environment as preferred, and by doing this upholds the mental state required for continuous development until completion. *"when you maintain the environment you kind of get the same energy and the same vibe".* In the final stage, the production is given to the people, through media transmission platforms available to the listener. The final product is then disseminated for the listening audience.

c. Film & Theatre

In the creative process of film and theatre both writing and editing which occur at different points in the process require focus and concentration. The producer describes the process as internal and external, referring to the thought processes used and the stimuli of social contexts, respectively. The role of the physical environment in this domain is twofold with some differences from those previously discussed. In the first stage of the process, the initial ideas in the case studied are extracted from realistic socio-cultural situations deemed as significant in the producer's past or current experience. *"something in the environment made me think about the people I saw"*. The chosen situation is examined, the opportunities presented by the content of the social context are examined for, initial or potential ideas are mindfully visualized.

In writing development, the ideas are formed through further connections between the producer's personal experience, interests and stimuli from the context of the external environment. It is given richness by adding layers of meaning. *"I'm creating something internally, now, here in my head… I might go back into the*

external and bring back something to the internal like something I remember in my life", "I have ideas in my head that I have for years, they're just not written down". These statements show how the ideas are cyclically refined with past or present information. The physical setting for writing or editing is one marked by solitude an no distractions. "*I like being alone when I'm writing, I like solitude".* Distractions may include perceived movement in the physical setting and auditory stimuli such as having a conversation. If music is to be used, it must be an instrumental with no lyrics that draws at the attention. The producer mentions the preference for use of certain preferred tools such as 'a pen or computer', as opposed to a phone which feels 'impersonal'

After the script is completed, the actors are called in for shooting, after which, editing of the film begins. The physical setting of the chosen social situation is translated to the thematic presence of film production, the people are now seen for their physical, embodied material presence. The materiality of the setting is thought of in consideration to the atmosphere and tone of the final production. *"The internal part might visualize the environment where the story is going to take place externally when its realized with an audience".* Editing reinforces the atmosphere required by the storyline through composition and the addition of audio to the thematic field needed in the film. Evaluation of this process takes 'self-reflection' and instinct, which are required to accurately represent the intended thematic field or physical atmosphere of the film as a realistic atmosphere. *Editing is very instinctive, and so you're aware of your feelings while you're editing.* This use of self-reflection and instinct seems to demonstrate a process where the producer's lived, embodied experiences are recollected and used as references for developing the appropriate atmosphere in the film.

Finally, after completion of the production, it is ready to be released to, and viewed by, the audience. At this stage, the idea which was once extracted from a realistic social situation, is refined based on the intended meanings. However, upon being given back to the physical world, the meaning is left open, to be interpreted by the public and the work of art is no longer your own.

d. Visual Arts

The visual artist's creative process begins with an assessment of clients' requests of the intended artwork. This gives an understanding of the opportunities that are present within the limitations of the clients' requests, which may range in specificity. "*so, this is the basis that I would work with and then my creativity compliments that".* The artist seeks information and references of previous works as guidance sufficient for the completion of the artwork since these reflect captured expressions of some physical situation. *"I ensure that I use references".* During these initial stages, the physical setting seems to be marginal and indirectly facilitates the assessment and exploration, such that there is no particular preferred setting; and social media or telephone communication is enough. *"I don't have much of a preference".*

With these stages completed, a decision about the main idea or focus of the project is made and initial sketches are done based on these considerations. The visual describes this as the beginning of creativity, which occurs entirely as a mental process of exploration of ideas and techniques which render a mental image of the intended work. *"I try to begin everything in the mind first, so its mental I would literally try to create it in my mind".* This is then externalised through an initial sketch which is then shown to the client for feedback *"I would brain storm it then I would transfer it to the paper in a sketch"*. This process is made more intimate having such close contact with the final audience, who evaluates the sketch and gives approval for its completion.

During development of the artwork, there are similar needs such as isolation and silence as previously highlighted, which support this mental state. Similarly, some ambient sounds, such as instrumentals or interesting podcasts are preferred in the thematic field and are not. *"just having a constant -either music or interview- running in the background, helps me to really delve into the work that I'm creating".* Additionally, good lighting is needed in the surrounding environment, so that colors and details are true and properly executed. Other aspects in the immediate environment, such as perceived movement, direct communication and unwelcome salient sounds are distractions. The final development of the artwork is completed, resulting in the production of the art piece for the client.

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BIOGRAPHY

The author, Yerianne Christa Haywood is of Guyanese birth in Linden, Guyana on the 8th September, 1993. Growing up in the town of Linden, she completed her primary and high school education at the Regma Primary School and Mackenzie High School respectively. After two additional years of successful study in CXC O levels at McKenzie High School, she began her studies in architectural design at the University of Guyana, Turkeyen, East Coast Demerara. Upon completion of her studies in a period of four years, she graduated with a Bachelor's of Science degree in Architecture. Having been accepted for a job as a part-time Junior Architect during her final two years of the program, she resumed role as Junior Architect as a full-time employee. She would continue to work with this firm for two years before seeking a Master's Degree in Architecture at the *Institut Teknologi Sepuluh Nopember* in Surabaya, Indonesia, by means of a KNB Scholarship Award.