APPLICATION OF HUMAN-CENTERED DESIGN INSPIRED BY CONTEMPORARY DESIGN

Case study: Nairobi Gallery, Nyayo House

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A Research Project Submitted in Partial Fulfillment of the Requirements for the award of the Degree in BA (Design) at University of Nairobi
Submitted on 8th February 2013
DECLARATION

I, Lorraine Achieng Atego, declare that this is my original work and also affirm that to the best of my knowledge, this project has not been presented in this or any other university for examination or any other purpose.

Signed .................................

Date .................................

Atego Lorraine Achieng

A Research Project submitted in partial fulfillment of the requirements for the award of the degree of Bachelor of Arts (Design) at the University of Nairobi.

Supervisor,

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Signature .................................

Date .................................

Director, School of the Arts and Design,

DR. W. H. ONYANGO.

Signature .................................

Date .................................
DEDICATION

“For I know the plans I have for you, declares the Lord, plans for welfare and not for evil, to give you a future and hope. Then you will call upon me and come and pray to me, and I will hear you.” Jeremiah 29:11-12

I dedicate this to the Almighty God who has been my shepherd during throughout and my father who has always supported me.
ACKNOWLEDGEMENTS

Uttermost praise to the Almighty Father for the strength he has given me throughout especially at a trying time for me with personal issues. You Lord are my rod and stuff. Much love to my family and my aunty Rosemary for their constant encouragement and much needed support.

Sincere appreciation goes to my assistant lecturer Mr. Munene. Your wisdom, positive criticism and constant encouragement helped me strive to do the best and not settle for less. You are an asset to the School of Design. To my project supervisor, Dr. Onyango, thank you for supporting us.

Last but not least to the curator and staff at Nairobi gallery. Your warm reception and willingness to let me pursue my project is much appreciated. My prayer is that the proposal shall be implemented so that Nairobi gallery gains the recognition it deserves.
# TABLE OF CONTENTS

DECLARATION ............................................................................................................. 2
DEDICATION .................................................................................................................. 3
ACKNOWLEDGEMENTS .............................................................................................. 4
LIST OF FIGURES ....................................................................................................... 8
ABSTRACT ..................................................................................................................... 10

CHAPTER 1 .................................................................................................................. 11

1.0 INTRODUCTION ................................................................................................... 11
1.1 Background of the study ....................................................................................... 11
1.2 Problem Statement ............................................................................................... 12
1.3 Objectives of the study ......................................................................................... 12
  1.3.1 General objectives of the study ...................................................................... 12
  1.3.2 Specific objectives of the study are to: ......................................................... 12
1.4 Research Questions .............................................................................................. 13
1.5 Significance of the study ..................................................................................... 13
1.6 Hypothesis ........................................................................................................... 13
1.7 Scope of the study ............................................................................................... 13
  1.7.1 Thematic scope ............................................................................................. 13
  1.7.2 Concept and content ..................................................................................... 13
  1.7.3 Geographical ............................................................................................... 13
1.8 Conceptual Framework ....................................................................................... 14

CHAPTER 2 .................................................................................................................. 15

2.0 LITERATURE REVIEW ......................................................................................... 15
  2.1 Introduction ....................................................................................................... 15
  2.2 Review of previous studies ................................................................................ 16
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.3 Human-centered design</td>
<td>23</td>
</tr>
<tr>
<td>2.3.1 Guiding Principles</td>
<td>24</td>
</tr>
<tr>
<td>2.3.2 Characteristics of Human-Centered Guidelines</td>
<td>25</td>
</tr>
<tr>
<td>2.4 Exemplars</td>
<td>30</td>
</tr>
<tr>
<td>2.5 Indoor environment</td>
<td>35</td>
</tr>
<tr>
<td>2.6 Fixtures</td>
<td>46</td>
</tr>
<tr>
<td>2.7 Furniture</td>
<td>46</td>
</tr>
<tr>
<td>2.8 Landscaping</td>
<td>49</td>
</tr>
<tr>
<td>2.9 Summary</td>
<td>52</td>
</tr>
<tr>
<td>CHAPTER 3</td>
<td>53</td>
</tr>
<tr>
<td>3.0 RESEARCH METHODOLOGY</td>
<td>53</td>
</tr>
<tr>
<td>3.1 Overview</td>
<td>53</td>
</tr>
<tr>
<td>3.2 Research design</td>
<td>53</td>
</tr>
<tr>
<td>3.3 Target Population and Sampling</td>
<td>54</td>
</tr>
<tr>
<td>3.4 Data analysis</td>
<td>56</td>
</tr>
<tr>
<td>3.5 Data presentation methods</td>
<td>56</td>
</tr>
<tr>
<td>3.6 Summary</td>
<td>56</td>
</tr>
<tr>
<td>CHAPTER 4</td>
<td>57</td>
</tr>
<tr>
<td>4.0 PRESENTATION, SITE ANALYSIS AND INTERPRETATION OF FINDINGS</td>
<td>57</td>
</tr>
<tr>
<td>4.1 Introduction</td>
<td>57</td>
</tr>
<tr>
<td>4.2 Presentation of findings</td>
<td>57</td>
</tr>
<tr>
<td>4.3 Analysis (Pictorial and Theoretical)</td>
<td>59</td>
</tr>
<tr>
<td>CHAPTER 5</td>
<td>67</td>
</tr>
<tr>
<td>5.0 SUMMARY AND RECOMMENDATIONS</td>
<td>67</td>
</tr>
<tr>
<td>5.1 Introduction</td>
<td>67</td>
</tr>
</tbody>
</table>
LIST OF FIGURES

Figure 1: Conceptual Framework.................................................................12
Figure 2: 3600 Field of vision diagram......................................................16
Figure 3: Correr Museum...........................................................................17
Figure 4: Castelvacchio Gallery.................................................................17
Figure 5: Palazzo Bianco..........................................................................17
Figure 6: Movement in Tate Britain through galleries.................................20
Figure 7: Open Gallery..............................................................................25
Figure 8: The Ilana Goor Museum in Tel Aviv............................................26
Figure 9: Pompidou installation views.......................................................29
Figure 10: Tate Modern............................................................................30
Figure 11: Moma Gallery.........................................................................32
Figure 12: Sculpture display at MOMA....................................................32
Figure 13: German Expressionism translated onto the walls of the exhibition entrance from 2D to 3D..........................................................33
Figure 14: Track Lights............................................................................40
Figure 15: Accent lighting.........................................................................40
Figure 16: Kudu core chandelier...............................................................40
Figure 17: Linoleum flooring....................................................................42
Figure 18: Acoustic ceiling tile.................................................................43
Figure 19: Gypsum ceiling.......................................................................43
Figure 20: Structured low tables...............................................................45
Figure 21: Lounge seats..........................................................................46
Figure 22: Modern bench.........................................................................46
Figure 23: Ramen stools..........................................................................46
Figure 24: Sansevieria plant.....................................................................47
Figure 25: Philodendron..........................................................................48
Figure 26: Peace lily..................................................................................48
Figure 27: Bromeliad plant.......................................................................49
Figure 28: Google map image of Nairobi gallery........................................57
Figure 29: Main corridor.................................................................57
Figure 30: Gallery..................................................................58
Figure 31: Documentary room......................................................58
Figure 32: The atrium.................................................................59
Figure 33: Paving materials for landscape.................................60
Figure 34: Main entrance............................................................60
Figure 35: Types of gallery furniture...........................................61
Figure 36: Atrium area furniture...............................................62
Figure 37: Video room furniture..................................................62
Figure 38: Information desk.........................................................63
Figure 39: Door signs.................................................................63
Figure 40: Entrance sign.............................................................64
Figure 41: T.V Display.................................................................64
Figure 42: Inspired contemporary art gallery..............................67
Figure 43: Art gallery.................................................................67
Figure 44: Sculpture gallery........................................................68
Figure 45: Track lights.................................................................68
Figure 46: LED Lighting...............................................................69
Figure 47: Landscaping concepts...............................................69
**ABSTRACT**

The research aims to do the following: study the present day Nairobi gallery and in particular the interior architecture, exhibition and display, furniture and landscaping concepts in order to ascertain the problems encountered and propose relevant changes.

The researcher went on his research with the assumption that a new gallery design would elevate the reputation of the gallery leading to more participant artists and visitors.

The researcher went to the site, observed the gallery and took photographs. The researcher was able to have informal discussions with some visitors, staff members and the museum curator. From observations made by the researcher, the gallery has not implemented human centered design to its interiors thus some factors are hazardous to people. The interior coupled with the lighting design is not very pleasing thus the need for an upgrade.

In doing a review of what other researchers have done concerning gallery spaces, the researcher went out to look for information from sources in the library such as books and thesis. The researcher also heavily borrowed information from internet sources. From the observations and findings, the researcher proposed the implementation of human centered design inspired by a contemporary theme.

The researcher concluded that the interior design of the gallery needs an upgrade. The researcher then made the necessary recommendations that would improve the galleries present condition.
CHAPTER 1

1.0 INTRODUCTION

1.1 Background of the study

Nairobi gallery the old Provincial commissioner’s office was built in 1913 and was designed by the then government architect C.R and Overy who also designed other fine buildings in Nairobi among them the present McMillan library building. It was part of an original master plan of government buildings around what is now Kenyatta Avenue and Uhuru highway roundabout. The exterior of the gallery is decorated with columns, niches, friezes and pediments of natural stone. The original entrance leads from the roundabout into an octagonal hall covered with a beautiful dome. The surrounding rooms extend from a central space divided into 2 wings, the walls have a smooth lime plaster finish, windows and doors of teak wood, some ceilings have beautiful exposed teak battens. (Irene, 2013)

The old PC building was first used by colonial government as the office of the native ministry where births, marriages, and death certificates were issued, hence the nickname ‘Hatches, matches and dispatches.’ Before independence, the building became a colonial courthouse where natives accused of entering Nairobi without a pass were tried and sentenced. One Mzee Ttitus Mwai Mugo was tried and sentenced here severally. He identifies the room within the house which served as judge’s chambers, holding cells, string room and the safe where cash and guns are kept. Because of its historical significance, the old PC house was later gazetted by the government in April 1993 and declared a monument in 1995; the building was then handed over to the National museums of Kenya for preservation purposes. Renovation to restore the building to its original state was completed by the national museums of Kenya in September 2005. Since then the renamed Nairobi gallery hosts temporary exhibitions from the National Museums of Kenya and stakeholders in the cultural landscape. (Irene, 2013)
Human-centered design is not a design style, but is a process for designing and developing buildings, products, and communities that is grounded in information about the people who will be using them—utilizing research findings and data on cognitive abilities, physical abilities and limitations, social needs, and task requirements in order to provide living-environment solutions that enable all users to function at their highest capacity—regardless of age or ability. The growing complexity and the ubiquity of technology demands a more human-centered approach in designing products and services (Harper, Rodden, Rogers & Sellen, 2008).

Advocated by Kouprie and SleeswijkVisser (2009), although they suggest a more sensitive and empathic approach: “designers should be more sensitive to users, be able to understand them, their situation, and feelings: to be more empathic”. Furthermore, Kouprie and SleeswijkVisser explain that empathizing means that the designers are willing to explore people’s situations and experiences, immerse themselves in people’s life with an open mind, are able to connect with people to understand feelings and meanings and finally detach themselves by ‘switching mode’ from being investigative to being helpful.

1.2 Problem Statement
Nairobi gallery has not sufficiently utilized human-centered design to create a contemporary inspired environment. The key problem areas of investigation are landscaping, interior architecture, furniture design, exhibition and display.

1.3 Objectives of the study
1.3.1 General objectives of the study
To investigate ways in which human-centered design inspired by contemporary design can be implemented in Nairobi gallery.

1.3.2 Specific objectives of the study are to:
- i. Establish ways in which human-centered design can be applied in Nairobi Gallery
- ii. To analyze how contemporary design can be used as inspiration in the redesign of Nairobi gallery
iii. To identify how human-centered design can be integrated with contemporary design in Nairobi Gallery.

1.4 Research Questions
i. How can human-centered design be applied in Nairobi Gallery?
ii. How can contemporary design be used as inspiration in the redesign of Nairobi Gallery?
iii. How can human-centered design be integrated with contemporary design in Nairobi Gallery?

1.5 Significance of the study
The aim of this project is to propose ways in which human-centered design inspired by contemporary design can be applied in galleries.

1.6 Hypothesis
i. Null: Human-centered design inspired by contemporary design cannot be applied in Nairobi Gallery.
ii. Alternative: Human-centered design inspired by contemporary design can be applied in Nairobi Gallery.

1.7 Scope of the study
1.7.1 Thematic scope
The study will concentrate on application of Human-centered design in galleries with special reference to Furniture design, interior architecture, landscaping and human development and exhibition and display.

1.7.2 Concept and content
The study will refer mainly to primary information. More information will be acquired from secondary sources. Materials, ideas, and data will be sought out, to have a proposal that will embrace the idea of creating a gallery space using human-centered principles.

1.7.3 Geographical
The research proposal will be based in Nairobi Kenya while the case study area
Figure 1: Conceptual Framework

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<thead>
<tr>
<th>Independent variables</th>
<th>Dependent variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human inspired Furniture design</td>
<td>Contemporary gallery design</td>
</tr>
<tr>
<td>Human inspired Landscaping</td>
<td></td>
</tr>
<tr>
<td>Human inspired Interior design</td>
<td></td>
</tr>
<tr>
<td>Human inspired Exhibition and display</td>
<td></td>
</tr>
</tbody>
</table>

Source Author, 2013
CHAPTER 2

2.0 LITERATURE REVIEW

2.1 Introduction

The time period we currently live in is characterized by a particular style or design in architecture, art, or paintings, which is commonly referred to as contemporary design. Its key distinguishing features are simplicity and cleanliness. However, it does not mean that the simplicity of contemporary design makes it boring; it rather takes the route of simple lines and puts away all the strange details that might be present in the other styles, such as deconstructivism, for example. The simplicity of the contemporary design has two important features: color and texture, which are capable of changing the appearance of the entire work. The traits of the contemporary style can be found in many forms of modern art from painting and sculpture, and to architecture, interior and to furniture design. (MoCoLoco 2012)

There are about six core elements that play an important role in contemporary design. Those are: color, metal, texture, wood and lighting. Lighting plays a significant role, because its purpose is to highlight the particular objects in the entire picture of the space. The color should not be very explosive, but rather neutral. When metal is used, it should be nickel, chrome or stainless steel to make even yet distinct lines. Texture creates the atmosphere of warmness and comfort inside a space. As for the wood, contemporary designers tend to use pine instead of oak. The final element of this design style, which underlines the full picture, is that artwork which unites all the constituents of a particular design project together.

Contemporary design is quite popular in our time, because we are literally surrounded by it. However, there are many art forms like paintings, sculpture, architecture or ceramics, where contemporary style may seem strange and even extremely unusual to us. Still, simplicity, the most important feature of this design, is called to fill a particular item with beauty and comfort. In association
with other elements of contemporary style, such as neutral color and distinct textures, such simplicity makes contemporary designed objects beautiful, awesome, astonishing, and appealing. Indeed, every piece of art has its own greatness and strangeness; sometimes it just takes time to understand the real value of it.

In the early twentieth century, when the conventions of traditional exhibition spaces practices radically changed, and the context of presentation of art received special attention, when the context became content, as O’Doherty argued (1986), a group of artists, designers and architects, all key figures of post-cubist movements, became particularly preoccupied with exhibition design. El Lissitzky, F. Kiesler, and H. Bayer, among others, introduced radical innovations in exhibitions, which were then absorbed by museums. They argued that space should not be seen as the background to the display of art, but as the link between objects, and as important as the objects themselves. Throughout the exhibitions and installations they designed they tried to integrate space and objects, to create an ‘organic unity’, a total meaning. The revolutionary design concept was theorized, in the 1930s, by Kiesler in his notion of ‘Correalism’, ‘the science of relationships’, and described as follows: ‘The traditional art object, be it a painting, a sculpture or a piece of architecture is no longer seen as an isolated entity but must be considered within the context of this expanding environment. The environment becomes equally important as the object, if not more so, because the object breathes into the surrounding but also inhales the realities of the environment no matter in what space.’ (Goodman 1989)

2.2 Review of previous studies
For the permanent display of Peggy Guggenheim’s collection in her New York Gallery ‘Art of This Century’, Kiesler designed in 1942 four gallery spaces where he presented the paintings without frames, suspended from curved wooden walls (attached to the existing walls of the gallery) or supported by specially designed stands. Works could be manipulated, manually or mechanically, and
adjusted to the desired viewing angle by the visitor, whose ‘act of seeing -of receiving, was seen as a participation in the creative process no less essential than the artist’s’ (Goodman 1989). To Kiesler, removing the frame from the paintings meant replacing it with another dynamic ‘frame’: ‘That is: the general architecture of the room. Painting became part of the whole and was no longer artificially isolated’, he argued. Some years earlier Kiesler had designed his famous exhibition system, termed ‘T and L’, which consisted of freestanding structures for the display of objects that could be adjusted to the viewer’s eye level, arranged independently or grouped together, and adapted to the specific demands of a particular exhibition space. He observed (2001): ‘(the painting) ceases to be a decoration on the wall and becomes a small solid island in space. It is a world in itself which the painter has conceived and the architect has anchored.’

The idea of the active role of the wall was also articulated by El Lissitzky, one of the leaders of the Constructivist movement, who argued (1970): ‘I did not see the four walls as supporting or protecting screens but rather as an optical background for the painting’. Lissitzky first realized his innovative ideas in his famous exhibition space, the Proun environment, designed for the 1923 and 1926 International Art Exhibitions: a cubic space designed as a visual unity that incorporated floor, ceiling and walls. He placed thin wood strips, painted white on the left side and black on the right, against the grey wall surface so that as the viewer moved through space, the walls appeared to change color (Lissitzky 1970; Lissitzky-Kuèppers 1968); ‘Accordingly and depending on the position of the viewer, the paintings appear against a black, white, or gray background- they have been given a triple life’, he argued. Thus, as he explained (Lissitzky 1970; Dorner 1958), ‘an optical dynamic was created as a result of the human motion’ since the viewer was ‘physically forced to involve himself with the exhibition objects’.

Setting out from Kiesler’s and Lissitzky’s acknowledgment of the relationship between viewer and object, Bayer, member of the Bauhaus, explored further
the way the viewer sees and receives impressions. He proposed possibilities of expanding the experience of the visitor, by extending his field of vision on all sides, instead of limiting it to the usual wall areas, establishing ‘a sort of spherical perception’ (Celant 1996). As Cohen (1984) rightly pointed out, Bayer shifted the emphasis form the display to the viewer. This attempt was expressed in his famous ‘Diagram of field of vision’ (1930), a drawing, which showed the viewer’s head replaced by an immense eye scanning ceiling, floor and wall panels.

**Figure 2**: 3600 field-of-vision diagram

![Diagram of field of vision](image)

**Source**: Bayer (1930) [Cohen 1984]

What seems particularly interesting in these revolutionary design concepts is that they proposed a new spatial conception, and through their installations stressed the significance of the experience of space, and lead to an emphasis to the relationship between movement, placement of objects and viewer. Sculptures are placed on stands to emphasize volumes and forms. Paintings are also treated as three-dimensional objects, freed from the walls, either mounted on easels as for instance at the Correr Museum, Venice, and the Castelvecchio, both designed by Scarpa- or hung on metal rods -as in the case of the Palazzo Bianco, Genoa, designed by Albini. Panels -used as background to set off, with their carefully selected colors, unframed paintings sculptural fragments and small scale statues-, are positioned in space so as to alter its geometry while focusing attention to the works displayed.
**Figure 3**: Correr Museum

Source: mostremusei.com

**Figure 4**: Castelvacchio gallery

Source: aguideinverona.com

**Figure 5**: Palazzo Bianco

Source: italyheaven.co.uk
Scarpa’s design of the Castelvecchio Museum stages our perception of how exhibits are related and constructs spatial meaning. To illustrate this argument, the authors discussed first the positioning of statues in the sculpture galleries of the museum. It was demonstrated that their seemingly free spatial arrangement, revealed at closer inspection a deliberate configurational pattern: the location of each statue took virtually into account that of others, so that their gazes were either directed to each other, or intersected at a common point in space -often the integration axis. But the perception of these changing relationships between the statues’ gazes depended on the visitors who occupied the point of intersections and acknowledged the convergence of gazes; so the structure of the field of intersecting gazes could be revealed though movement. The statues became more than objects to be seen, and distant viewing was replaced by an embodied experience. In this way, space did not only generate patterns of encounter between visitors, but also sustained a different field of co-awareness, generated by the co-presence of both visitors and statues.

Almost in parallel to the exhibition theory developed earlier, the early twentieth century was marked by the ideology of the ‘white cube’. Introduced by the MoMA in its 1929 opening exhibition, it became the dominant approach to display almost throughout the century. In complete contrast to its eclectic theory that aims at the synthesis of art and architecture, the ‘white cube’ model proposes an invisible architecture that seeks not to interfere with the work of art. Objects are presented in neutral and undecorated spaces, in a white background, isolated from everything that might detract from their appreciation. But in the last years, the concept of an idealized neutral context does not hold anymore.

As previously seen, it has been increasingly recognized (Mainardi 1987; Elderfield 1998) that objects are determined by the context in which they are placed. More importantly, many art historians, like Duncan, Wallach,
Grunenberg, Staniszewski, and Meeham and Sheldon (2000), questioned the alleged neutrality of the white cube. For example, Grunenberg (1994) interpreted it as an ambition for ‘historical accuracy and objectivity’; Duncan (1978, 1980) saw the neutralization of the original context of the works and the purely aesthetic mode of display as an intention to sacralize the museum space; Wallach (1992) questioned the exclusion of any reference to the outside world and interference with other works as a mode of viewing that suggests a sense of scientific detachment from the objects on display.

Other authors, like Riley (1998), pointed out that a work of art was never meant to be seen in such context. Few, like Wigley, incorporated the issue in the wider discussion of the use of the white color in modern architecture, arguing that white is: ‘a way of seeing’ (2001). ‘The white surface’ he wrote ‘does not simply clean a space or even give the impression of clean space. Rather, it constructs a new kind of space’. (2001). Dutch museums has incorporated innovative approaches, such as the Bonnefanten Museum, Maastricht (A.Rossi, 1995), or the Groninger Museum, Groningen (A.Mendini, Ph. Starck, Coop Himmelblau 1994), and the Royal Danish Academy of Fine Arts, Denmark, to name just a few examples. The intense colors of the walls, as well as the display of paintings in unexpected locations (i.e. above the doorways), or in atypical groupings (i.e. paintings of Hammershoi sparsely hung at the corners of the room), create a stimulating visual and spatial experience, and may be seen as a reaction to the standard method of exhibiting, to the simple, undecorated, white galleries that are everywhere and so have become invisible to most visitors (Celant 1996; Wigley 2001; Staniszewski 1998).

Tate Britain originally built in 1897 is a good exemplar when it comes to special layout and of museums and galleries. Space Syntax Laboratory was commissioned by the Tate, in July 1995, in developing and evaluating design proposals for the latest expansion and remodeling of the building. The aim was to ascertain the likely impact of the proposed additions (a new basement level
entrance) and changes to the existing layout, and how they might affect the patterns of visiting and the spatial culture of the gallery. Previous visitor surveys had shown that visitors valued the informal and relaxed atmosphere of the Tate, and tended to visit quite impromptu and to repeat visit. These were clearly key factors in the success of the Gallery in spite of its somewhat remote location. The initial task was to observe how the gallery worked and then try to predict what the effects of the remodeling would be. This entailed a thorough study of movement and space use, an approach that has become the standard method for researching spatial layout in galleries and museums in a syntactic way. First, to understand the pattern of movement, which previous studies had concluded was random; the routes of 100 people were recorded for the first ten minutes of their visit. The tracking data showed that upon entering, visitors quickly diffused into many, but not all, parts of the gallery. Many moved along the central axis of the building from the main entrance and then turned into one of the shorter cross axes, but with a strong bias to the left side galleries. Many other also turned immediately right to go the Clore Gallery (the 1987 addition), but, although this led to high flows in the main access spaces in the Clore, there was a comparative paucity of visits to the immediately adjacent dead-end spaces.

**Figure 6:** Movement in Tate Britain through galleries

*Source: Hillier ET al. 1996*
The empirical investigation showed that to a surprising degree, the main feature of the pattern established in the first ten minutes of visits turned out to be reflected in the all-day movement pattern. Furthermore, simply comparing viewing and moving rates for each space showed clear patterns. For example, in the parts of the main axis closest to the entrance, moving predominated over viewing, not only because visitors were on their way to destinations deeper in the gallery, but also because these parts of the main axis were also used for cross movement between different parts of the gallery. At the far end of the main axis, viewing and moving were in balance, but with much higher rates of viewing. In other spaces, it was clear that there was much more viewing than moving.

2.3 Human-centered design

Human-centered design is based on the physical and psychological needs of the human user, enabling the user to function at the highest level possible. It includes products and aspects of the physical environment that meet the needs and abilities of the user, not those that demand adaptation to the design by the user. Human-centered design is not a design style, but is a process for designing and developing buildings, products, and communities that is grounded in information about the people who will be using them—utilizing research findings and data on cognitive abilities, physical abilities and limitations, social needs, and task requirements in order to provide living-environment solutions that enable all users to function at their highest capacity—regardless of age or ability.

The principles underlying human-centered design range across disciplines—from community design, to architectural design, to interior design, industrial design, and design of communication venues. Some examples of human-centered design include:

- Lever door handles, which provide ease of opening for children with small hands, elderly people with reduced wrist strength, adults with full use of their arms and hands who may be carrying packages and babies, or an individual
with no hands. A lever handle allows a person to use an elbow, prosthesis, a carried item, or the full strength of his/her arm to easily open a door—thereby allowing for a vast range of abilities and enabling a vast range of people.

-Zero-step entryways into a home or building, which help small children and frail older people who cannot negotiate steps, people of all ages who have a permanent or temporary impairment, and people who use mobility aids.

The designer has to take several aspects of human being into account: how people think, feel and behave, which also includes cultural and social aspects. Designers need a thorough understanding of human values, needs, beliefs, motivations and limitations and how artifacts are being used and experienced by people. This requires a motivation to actively get people involved in the design process in order to gain insights and evaluate design decisions. For a designer, it is important to be able, or willing to empathize with people and to be intrinsically motivated to design meaningful products, systems or services for people. This motivation or this willingness to design for and to design with people can be best described as a human-centered attitude. Humans seek both physical and psychological comfort. Judith Heerwagen talked about a person’s sense of well-being and how it influences productivity, creativity, and engagement. Her research has focused on four elements that must coexist to create positive and productive places: cognitive effectiveness, social support, emotional functioning, and physical function. ‘If people aren’t comfortable and don’t have a sense of well-being, they become distracted. We must first consider what will make people feel comfortable, freeing their brains and bodies for learning.’

2.3.1 Guiding Principles

-The 12 brain/mind learning principles articulated by Renatta Caine help us understand how humans function and learn. A few of these principles suggest direct connections among stimulation, learning, and physical space. The brain/mind is social: We change in response to engagement with others. Space
has a role in determining the quantity and quality of engagement as well as its potential as an effective learning experience.

-Learning involves both focused attention and peripheral perception: Good space design is visually stimulating. While space should not distract from the ability to focus, it can provide sensory stimulation that influences the experience and thus learning. Space can also be the "silent curriculum" that complements and increases engagement.

-Each brain is uniquely organized: We all perceive the world in different ways and act accordingly. People do not experience an environment in the same way. The best opportunity for success comes from variety.

Articulating these fundamentals can keep design ideas and processes focused on the most important characteristics of a human-centered environment.

2.3.2 Characteristics of Human-Centered Guidelines

These guidelines invite an exploration of human-centered environments for their capacity to transform spaces. When used to set direction, these ideas facilitate purposeful choices without adding cost.

2.3.2.1 Healthful

Healthful spaces incorporate ergonomic and environmental principles and sustain physical well-being.

-Lighting: A variety of lighting is the most important way to maximize the effect on display items; it can be achieved with different types of lighting or with dimmers.

-Ergonomic considerations: Ergonomics is about more than a comfortable, adjustable chair. Ergonomic thinking considers the entire environment and how it supports and interacts with the human body. Well-planned pathways, open access to equipment and supplies, and ease of moving furniture are all
ergonomic considerations. Because of the diversity of human sizes, tables and chairs should be adjustable. People should feel encouraged to get up and move around. Two principles of sound ergonomic thinking are worth remembering: it shouldn't hurt, and it should prevent injury.

### 2.3.2.2 Stimulating

Stimulating spaces attract people and spark creative thinking. They have the ability to motivate and engage people.

- **Sensory cues**: Multisensory experiences engage and stimulate people. Visual, tactile, auditory, and kinesthetic experiences all influence memory and the intake of information. Diverse stimulation raises mental awareness and allows people to absorb the information and ideas that the environment facilitates. Very little of our learning experience or the design of environments considers this. Yet certain experiences can be tied to a particular place, sound, or smell, which provide cues that help the brain build memory and process information. Humans associate what they learn with where they learned it. The key here is that spaces must have variety to stimulate, sometimes accomplished simply by painting rooms different colors. Music which plays in the background as people move from room to room is a good example of utilizing both the eyes and ears sensory organs at the same time.

- **Elements of surprise**: Mystery and surprise stimulate the human mind and senses and invite discovery. Consider the potential of hallways and pathways that provide unexpected spaces for art works, casual conversations, or hiding away for quiet time. Galleries should not just consist of the four walls but should offer something new and surprising for every corner one turns to kill the monotony of such spaces. Out of the ordinary gallery experiences are always remembered by people and opens up their mind to the art on display.

- **Transparency, visual access**: Connecting visually lets people feel a part of something bigger. Corridors, too, become part of the gallery experience when
they invite activity and have interesting views, as opposed to long, stark, and linear places. Vistas into and out of spaces need not cause distraction, instead enhancing cognitive activities. Providing architectural and design elements that expand and open interior views and provide lines of sight proves engaging to the gallery-goers.

**Figure 7**: Open gallery

![Open gallery](source:en.wikipedia.org)

**Source**: en.wikipedia.org

-**Connection to nature**: Nature continually stimulates us because of its always changing elements. The human response is positive, though typically subconscious. Environments that simulate nature provide a sense of security and pleasure. Features found in a natural habitat can be associated with a created environment. Consider, for example, reflective surfaces or glass associated with water. Fire, the provider of warmth, food, and light, can be replicated in the types of places where people instinctively gather. Varied ceiling heights can represent the safety and comfort of a tree canopy. Meandering halls or pathways mimic nature’s patterns.

-**Color and texture**: Textures, colors, and shapes can reinforce association and retention of art spaces. The key is to think of the total environment, considering ways to achieve interest and variety. Timeless and stimulating
colors and textures of nature guide the human-made applications one may like to incorporate.

-Diverse shapes: Create spaces that offer visual choices of shape and form. A rectangular box is not the only answer; subtle adjustments to the geometry of space can balance hard and soft forms, asymmetrical and symmetrical patterns, creating visual and tactile interest. One should consider the influence of geometry on the activities within the gallery. A triangle, for example, holds magical religious meaning in some African communities such as the Berbers.

**Figure 8:** The IlanaGoor Museum Building in Tel Aviv

[source](www.israel21c.org)

### 2.3.2.3 Balancing Community and Solitude

Public spaces need to balance the dual and opposite human needs for community and solitude. Because gallery environments happen both in quiet, private moments and in lively, social settings, environments need to offer a spectrum of private and interactive places.

-Social, community space: Community and social space connects individuals with other people and other activities.
-Opportunities and spaces for socialization: This is possible in museums especially within atriums or within the galleries where people are able to interact and socialize

-Refuges, private spaces: It is important to create individual, private spaces. These don't have to be compartmentalized as even turning a chair can signal a desire for privacy. In creating opportunities and spaces for privacy one should consider ways to modulate the level of privacy, such as seated-height panels, rolling screens, and plants. This conceptual approach provides private spaces in a variety of degrees of enclosure, shapes, and forms.

**2.3.2.4 Adaptable**

Adaptable spaces support people, activities, and change. Gallery environments need to keep pace with changing everyday activities.

- Flexibility: Areas within a gallery space should flex for various types of exhibitions and display.

- Adequate space: Movement of people and furniture to different environment settings requires adequate space. Current space allocations for galleries encourage movement and circulation areas for people thus enabling lingering and interacting. If the space allocation doesn't support movement, then diversity in gallery spaces and viewing methods will be impossible.

- Welcoming and familiar: Humans have a tendency to seek out familiar places or create places with familiar attributes. The space should look comfortable in a variety of arrangements and for a variety of people.

- User ownership: One should consider the ways a space can "give" permission for ownership and not just to staff. Users must know that all occupants have a say in defining the place. Educating users about how to use the space to its fullest potential and how the various tools and furnishings can support occupants' needs is a prerequisite. Providing furniture that people can rearrange
and tools they can manipulate gives them the feeling that they have permission to claim ownership.

- Changeable focal points: One should not always establish a fixed front of the room. Without a set orientation, the room’s occupants can move and group furnishings, technology, and activity in multiple ways and in many places within a space.

- Mobile displays: Tools need to accommodate mobility of people and of information. Design that assumes all information exists in the galleries PowerPoint slides or overheads limits learning opportunities.

- Diverse information communication: One should consider how the tools that deliver information can be shared and controlled. Well-designed space and technology allow the pace and style of information delivery to change and support multiple people.

- Technology tools: Technology (projectors, personal computers, and so on) will change more quickly than other elements in the furnished environment. Technology should be integrated into the space to fluidly support learning, but it should be known that it will not match the lifespan of the room. Technology tools should support human interaction; they should not become the centerpiece of the space.

- Power/data access: Mobility of people, staff, and technology is a given. As a result, one should make power and data access as mobile as possible. One should anticipate the locations where users will want access and the range of activity needing support.

2.4 Exemplars
Pompidou Centre, Paris

Pompidou has a long history and influential evolution that made it a landmark in the history of architecture in general and in museum design in particular.
Two of the five identical open-plan floors are currently occupied by the Museum, and display the ever-growing modern and contemporary art collection. They were originally designed with no partitions or other vertical interruptions, and all the mechanical services and circulation devices (i.e. staircases, elevators) were limited to the exterior. It is of particular interest to review three critical moments that marked the museum’s history from 1977 to the present day, which also reflect the changes in the display practices in the last quarter of the twentieth century.

It was designed as an open plan layout that was articulated by movable panels, placed in clusters or dispersed in space. The intention of the first Director of the Museum, P.Hulten, was to create a spatial structure that resembles a city, with interlocking spaces, squares, paths and dead-ends. One wandered around in the museum like in a street complex; the arrangement of panels opened up long vistas, and allowed views into different sections of the display.

**Figure 9:** Pompidou installation views

![Pompidou installation views](source: MNAM archive)

A key aspect of the visual structure at Pompidou is that the variety in the disposition of openings forms isovists of extremely heterogeneous shapes; even isovists that look symmetrical are not identical. It could therefore be argued
that by allowing a simultaneous perception of different spatial locations, and hinting at spaces as destinations to be explored, the visual organization invites movement and distracts attention away from the space one is standing. The rich visibility across rooms emphasizes a dynamic dimension of space, inviting the viewer in exploration, relieves the repetition of the plan, and provides unity to the compartmentalized layout.

**Tate Modern**

Tate modern opened in May 2000, is the conversion of the mid-twentieth century power station designed by Giles Gilbert Scott. It is not however a conversion in the conventional sense. The architects J. Herzog and P. de Meuron made extensive interventions, maintaining essentially the shell of the original building.

**Figure 10:** Tate modern

Source: Google images

The critical differentiating feature of Tate Modern is the high degree of autonomy that governs the relation between space and display. Not only there are no strong interdependencies between space and display decisions, but also key spatial principles, which have an instrumental role in terms of organization of space, appear inert in respect to the exhibition set up. However, there is one linking point between the two layers of organization, and that is the high originality of the display message, which seems to be supported by the restrictive function of space. The self-contained displays, the controlled visual
fields, the lack of visual continuities across spaces encourage concentration, as reflected in the attention of visitors to the exhibits.

By minimizing the effort and the energy needed for exploring galleries, Tate places the emphasis on the intellectual content of the display. Visitors wander through the galleries without thinking of choices; they have to follow the succession of rooms and focus their attention on what they see.

2.4.1 Case study: 
**Museum of modern art (MoMa):**

The Museum of Modern Art (MoMA) is an art museum in Midtown Manhattan in New York City, on 53rd Street, between Fifth and Sixth Avenues. It has been important in developing and collecting modernist art, and is often identified as the most influential museum of modern art in the world. On one end of the spectrum, art is the center of attention. On the other end, art is a backdrop to social activity. In between are spaces both bustling and contemplative where people and art interacting in delightful ways.

There's a lot more than passive viewing going on. The re-design by Japanese architect Yoshio Taniguchi was completed in 2004 and nearly doubled the museum's gallery space. It also introduced a circulation system that heightens your awareness of fellow museum-goers as you move between galleries. As critic Arthur C. Danto put it in *The Nation*, "The consciousness of others moving from stage to stage and space to space is so much a part of the experience that one feels one is always part of a constantly changing work of art." The effect is that going to the museum feels much more like a shared experience than it did before the re-design. In addition to the galleries, every floor furnishes visitors with spaces to relax or have a quiet conversation, often with terrific views onto the sculpture garden below. Stylistically, the design looks back to modernism, a move appropriate to the museum's previous architecture and its core collection, but it does so in a building that aims, in Taniguchi's words, "to disappear," so that one is conscious primarily of the art.

Apart from the enormous atrium, the most important architectural features of
the interior are the cut outs and windows that connect different parts of the museum, and visually connect the museum to the surrounding buildings. In addition, the higher ceilings and larger room dimensions allow the works more space and give the new MoMA a much airier feeling.

**Figure 11:** Moma Gallery

![Moma Gallery](momaps1.org)

**Source:** momaps1.org

**Figure 12:** Sculpture display at MOMA

![Sculpture display at MOMA](moma.org)

**Source:** moma.org
Figure 13: German Expressionism is translated onto the walls of the exhibition entrance - From 2D to 3D.

Source: meaningstore.com

2.5 Indoor environment

2.5.1 Color theory and color psychology
Color has had an effect upon virtually every aspect of human life and culture since the beginning of time (Birren, 2000). Considering all subtleties and variations perceived by the eye, there is a definite effect of color on human psyche. Color presents opportunities that can be exploited in design of interior spaces but which remain unrealized because designs and color palettes are being dictated by market trends and prescribed hues (Portillo and Dohr, 1993). Colors have certain behavioral connotations and influence states of mind as well as the perception of some physical qualities of the immediate environment and, if used resourcefully in design of these environments, can influence the user’s emotional and mental balance (Wells, Need & Crowell 1979-1980). Color can be used as an important tool in design problem solving based on the various aspects that it influences. It offers many contributions to the built environment if used to its full advantage (Portillo and Dohr 1993).
2.5.2 Effects of color on the perception of interior environments
The placement of certain colors in an interior environment is an important factor, which affects the psychological impact of the space on the occupant and also the subsequent reactions. Whitfield and Slatter (1978) studied the judged appropriateness of colors for walls in an interior setting as a function of its style of furnishing. They established a relationship between appropriateness and prototypically and that the extent to which a particular color is found appropriate in an interior setting is a major determinant of positive or negative aesthetic response to the color. Interchanging colors of ceiling, walls and floor can alter the complete spatial character of a room and consequently reaction and behavior of the occupants (Mahnke and Mahnke, 1987). The effect of a hue on interior surfaces depends on the space, the material and texture carrying the hue, the duration of stay and the intensity of the hue (Mahnke and Mahnke, 1987). They also stated that there is a definite psychological association between color and its placement in an interior space and the spatial experience. Emotions that are evoked as a result of the color of surfaces in a space result in the variation in behavioral patterns of the occupants. Acking and Küller (1972) conducted an experiment to study the effect of color on eight major factors in the perception of an interior space. These factors were found on the basis of responses from subjects. Some of the relationships between color and the various factors deduced from the experiments are listed below:

Factor of pleasantness: This factor deals with a feeling of comfort and sense of security and well-being. Acking and Küller (1972) stated that differences within hues are as a rule much greater than between different hues.

Social evaluation factor: This factor implies an estimation of the social status. Acking and Küller (1972) found that perception of social status varies with lightness and to a lesser extent with chromatic strength. Results stated that an interior is valued more highly when blackness increases (towards a darker value) and less highly when chromatic strength increases.

Spatial enclosedness factor/ Perceived openness: This factor is related to the
description of the appearance of space and light. Aicking and Küller (1972) found that the perception of openness increases with lightness of either interior details or walls and also with a corresponding increase in the chromatic strength of interior details.

Factor of complexity: This factor refers to the intensity or complexity in the interior environments. Variations in materials, textures, and pattern throughout the space contribute towards increased complexity of the environment. (Scott, 1993) Results of Aicking and Küller’s (1972) study showed a positive correlation between chromatic strength and judged complexity. Complexity increased as chromatic strength increased. No such dependence was found on lightness but small positive correlation was reported with redness and greenness.

Emotional tone: This factor is largely associated with the emotions that the space evokes. Moving around the “hue circle” from red to purple, relationships indicate that emotional tones become cooler, harder, and more austere. Decreasing Chroma was found to enhance this effect.

Hemphill (1996) tabulated the results of a study on emotional reactions of adult males and females to different colored rectangles. Bright colors include white, pink, red, yellow, blue, purple, and green. Dark colors comprise of brown, black, and gray. Positive responses correspond to happy, excited, relaxed, and positive. Negative responses relate to anxious, boring, sad and negative. Hemphill (1996) stated that the reasons for most of the positive and negative responses are the established associations of colors in everyday life. Hemphill stated that the association of blue with the sky and ocean, which are seen to be limitless, calm and serene, could be the reasons for its preference. Preference of the color green was based on its association with forests, trees and nature. Yellow was stated as positive because of its association with the bright sun and grey was seen to be negative because of its association with rainy days eliciting sad and bored emotional responses.

2.5.3 Gender difference in response to color
There have been several studies to investigate the response of humans to color.
Some of the experiments were conducted to examine if men and women responded differently to color. Guilford (1934) studied the harmony of color combinations and found that more pleasant responses were found when human beings were exposed to either very large or very small differences in hue and his study further indicated that these responses were less prominent in men. Complimentary hues placed opposite each other on the hue circle elicit more pleasant responses than hues placed adjacent to each other on the circle. Guilford and Smith (1959) found that men are generally more tolerant towards achromatic colors. Further studies by McInnis and Shearer (1964) concluded that there are differences in color preferences of men and women. They found that 56% of men and 76% women preferred cool colors and 51% men and 45% women chose bright colors. Studies by Khouw (2002) indicated that warm colored environments with medium and high chroma were found to be generally unpleasant and overpowering.

2.5.4 Color and Lighting

“Color can extend walls, raise ceilings, and eliminate corners. Reaching beyond the limits of construction, it can sculpt a new space whose borders are defined purely by the spectrum, whose geometry consists not of carpenter’s planes but of the lines where one hue begins and another ends. Walls may be fixed, but painted surfaces can appear to move. Unbound by the rules of conventional placement, color creates architecture of its own” (Kaufman, 2001)

There are several factors corresponding to lighting in interiors. The factors that have been largely studied with reference to perception of interiors and behavioral connotations include illumination level, color of light, and type of illumination. Peretti (1977) conducted a study on the effects of illumination levels on verbal response latency; he concluded that too much illumination or too little leads to decreased visual performance and efficiency. Both high and low illumination levels affect hue and saturation qualities of color and these factors affect task performance as well. Köhler (1959) stated that color presents itself differently to the eye depending on the brightness of the background it is
displayed on and this also affects the perceived size of the object. Results of an experiment by Wells, Need and Crowley (1979-1980) indicated that the use of fluorescent light versus incandescent light has very little effect on the behavioral connotations of color.

Köhler (1959) presented general requirements for lighting referring to lighting as an artistic instrument that influences people psychologically. The recommendations provided by Köhler include:

Sufficient amount of light: This requirement is mainly based on the task being performed in the space. Illumination levels in a space should correspond with the minimum illumination requirements for various tasks. It also depends on aesthetic considerations, mainly dealing with harmony. Distribution of light and fixtures needs to be in accordance with the design and spatial character.

Uniformity of illumination: Disturbing differentials of brightness distribution in the field of vision should be avoided. Although intentional differences are acceptable and even required in certain areas, a soft transition is desirable.

Shading and incidence: Recognition of shapes and forms depends largely on their perception resembling natural shading as viewed in daylight. Distortion of shapes or appearance as silhouettes is a result of false shading.

Color of light: It is essential to suit the color of light to the colors in the room so as to obtain desired color rendition. This affect has been noted to affect the psychological as well as aesthetic quality of space.

Avoiding glare: Glare results largely from excessive brightness differentials in the field of vision and should be avoided both in the form of direct glare from lamps and fixtures as well as reflected glare from illuminated objects.

2.5.5 Acoustic Quality
A holistic approach must be taken to address acoustics. A wide range of internal and external factors such as traffic, plant, lighting, finishes, ventilation system and adjoining rooms impact on background noise and reverberation
times (Ecophon, 2002). There is a direct relationship between good acoustics and effective learning (Evans & Maxwell 1997). Consideration of hostel acoustics is particularly important with changing pedagogical models as they involve more group and project work (Ecophon, 2002). A reduction in the total area of hard surfaces in a space is key for embedding good acoustics. Careful consideration should also be given to selection of Heating Ventilation and Air Conditioning (HVAC) systems.

A good acoustic environment keeps noise at levels that do not interfere with activities within programmed space. Architecturally, there are three aspects to consider: sound isolation, building services noise and vibration control, and room acoustics. Sound and vibration isolation requirements for a given space will depend on desired ambient noise levels, the extent that external sources impinge upon the space, and the level of noise and vibration from nearby sources and activities. Building services that may contribute excessive noise and vibration include HVAC systems, plumbing e.g. of restrooms and electrical systems. Noise abatement begins with avoiding noise-generating factors, containing inevitable noise at the source, and locating sensitive spaces away from known noise sources. Sound-attenuating barriers and absorptive room surfaces must control noise transmission through the building structure and within rooms. To achieve positive acoustic quality in a room, spatial configuration and materials must be designed for appropriate resonance patterns. In overly quiet rooms, white noise can be used to mask private conversation.

Noise Control in the Space Itself:

- Absorb or block excessive background noise or interfering single-source sounds in open environments through use of resilient flooring (carpeting and tiles), ceiling (suspended ceiling tiles, absorbent ceiling geometry); and sound absorbing or reflecting partitions and furniture (chairs, desks, and shelves).
-Achieve favorable room acoustics by configuring room geometry, positioning furnishings and furniture, and specifying appropriate surfaces. With these tools, achieve a level of room resonance quality that supports the programmed uses.

2.5.6 Lighting

The quality of the experience within a space is affected by the lighting (Halletal, 2001). Art galleries have very unique demands when it comes to lighting them up. Unlike most rooms that require a fine balance of task, accent, and ambient lighting, art galleries mainly rely on accent lighting to accentuate the art on display. Ideally, one must have a picture lighting system that can be easily reconfigured to light up relocated or new art pieces displayed in the art gallery.

For several decades now, monorail lighting and track lighting are being used for lighting art galleries. Incandescent lamps are not really suitable for art galleries since they do not have the exact directional characteristics required for illuminating art galleries. Low-voltage track and cable systems are commonly used for this purpose, as they use halogen lamps that are known for their almost perfect color rendering abilities with precise beam control. Another important factor that needs to be considered is the color temperature since it decides how colors would appear to the eye under a specific lamp.

It is believed that warm colors would look more vibrant under ‘warm’ light sources while cool colors would look more pleasing under ‘cool’ lamps. The size of the lighted area is one of the major lighting problems when illuminating an art gallery. For instance, a large cone used to illuminate a small art piece may not only look odd but also distract your attention from the artwork to the illuminated wall. It may not be always possible to change fixtures but you can certainly resolve this problem by choosing a lamp of the right beam spread.
**Figure 14:** Track lights

Source: kerrvilleelectrician.wordpress.com

**Figure 15:** Accent lighting

Source: african-furniture-and-arts-in-21st.html

**Figure 16:** Kudu core chandelier

Source: african-furniture-and-arts-in-21st.html
2.6 Finishes
Floor finishes are major factor considered when designing a space. There are many types of materials that can be used as a type of floor finish. When choosing type of material, one should consider the function of the space as well as its aesthetic appeal. Acoustical properties of floor finishes have great impact on amount of noise they produce. Different colors too have an impact on how bright or dull a space looks. Extremely light colors, especially white, should be avoided in high traffic areas due to the ability to become dirty and shiny properties. Floor patterns or changes in floor finishes may be used to create circulation paths or separation between spaces. Of all finishes, floors will get the most wear and are usually the most expensive finish material. There are three basic categories of floor coverings:

- Hard surfaces—concrete, wood, stone, ceramic, and terrazzo
- Resilient surfaces—vinyl composition tile, sheet vinyl, rubber, and linoleum
- Soft surfaces—carpet and area rugs

Concrete is the basic structural material of floors in most new construction and, when scored, painted, stained, or glazed, can provide an aesthetically pleasing finish (Interior Design Principles, 2009). Wood flooring is typically an expensive upgraded finish that is applied in special areas. Hardwoods, such as oak and maple are much more durable than softwoods. Softwoods are susceptible to indentions overtime from moderate to heavy traffic. Stone floors include slate, granite, marble, limestone, and travertine among others. Stone is available in a variety of color sand finished in one of three ways:

- Polished finish—requires high maintenance, has poor slip resistance, and should not be used in heavy traffic areas, especially adjacent to building entrances.
- Honed finish—has dull, smooth finish with good slip resistance.
- Thermal finish—has a great deal of texture and is very slip resistant.

All stone may be used in interior or exterior applications; however, some stone, such as slate, requires applied sealants when used in doors. Granites are very
durable surfaces that can be used in most applications. Marbles range from hard to soft and are classified as such. Marbles usually require the most maintenance. Ceramic tile is made up of either clay or porcelain. The types of ceramic tiles available are mosaic, quarry, and paver. Ceramic tiles have different absorption capacities. The lower the absorption level, the greater resistance there is to staining. In heavy traffic areas like entrances heavy duty porcelain tile is recommended. Larger tiles require fewer grout seams per square foot; therefore, they are easier to maintain. Terrazzo is a flooring material of various sizes of marble chips in cement mortar. Metal divider strips are used as expansion joints. Linoleum is a natural product that is made up of linseed oil, cork, and wood floor. These materials combined provide a durable finish with superior thermal and acoustic properties (InteriorDesignPrinciples, 2009). Linoleum can be purchased in sheets or large tiles in a variety of colors, and unlimited patterns can be created.

**Figure 17:** Linoleum flooring

![Linoleum flooring](source: floor_materials.com)

Wall finishing’s come in different types such as paint, wallpaper, carpet etc. Fabric-backed and paper-backed vinyl wall coverings are popular for their low maintenance (Interior Design Principles, 2009). Wallpaper is typically used for residential projects due to its limited resistance to wear and maintenance. Paint is an inexpensive finish that is easily applied and can be used to create various textures. Paints come in two options: latex (water based) and oil (solvent based). Paint is produced in four basic sheens: matte finish, Satin finish, Semi-gloss finish and gloss finish. Ceramic wall tiles are another type of wall finish. Wall tiles have low impact resistance and are typically glazed. Wood paneling
is another type of wall finish but is an expensive wall treatment and therefore is usually applied to upscale spaces.

There are several materials that may be used for ceilings, such as hardwood, reinforced concrete, metal, plaster, drywall, and acoustical tile (Interior Design Principles, 2009). Acoustical ceiling tile (ACT) is a mineral fiber board product that provides no is reduction properties, and provides light reflectance properties. Gypsum board ceilings are the norm for most construction. They may have a smooth finish or be textured with a thin layer of plaster for visual interest and to improve acoustical performance. Gypsum board is applied directly to wood or metal frame systems. Plaster ceilings are seldom used in new construction but are often encountered in renovation projects. Metal ceilings are typically decorative and are installed as ceiling systems. Wood ceilings are more commonly used in geographical regions where wood is plentiful. Wood can be used to give a rustic lodge look, or a beautiful planked ceiling look. Options for wood ceilings include paneling, siding, and wood planks. The underside of a wood plank floor system can also be used as the finished ceiling below.

**Figure 18:** Acoustic ceiling tile

![Acoustic ceiling tile](Acoustic_tiles.com)

**Source:** Acoustic_tiles.com

**Figure 19:** Gypsum ceiling

![Gypsum ceiling](Gypsum_ceiling.com)

**Source:** Gypsum_ceiling.com
2.6 Fixtures

Ventilation is another type of fixture important more so to closed spaces. There are different types of ventilations that can be done in a space (Interior Design Principles, 2009). Mechanical "or" forced "ventilation is used to control indoor air quality. This is done by installation of AC or fans. Excess humidity, odors, and contaminants can often be controlled using mechanical ventilation via dilution or replacement without side air. Natural ventilation occurs when the air in a space is changed without door air without the use of mechanical systems, such as a fan. Most of the natural ventilation is assured through operable windows.

2.7 Furniture

Furniture design for gallery spaces may be influenced by sources of inspiration from the different types of furniture, products, or even geometric designs. Designers currently consider ergonomics and look at axonometric aspects of its users. Their designs concentrate on user friendliness and functionality (Interior Design Principles, 2009). Furniture should be comfortable for the intended user. Furniture function influences material and design. Different types of furniture include seating, storage and surface. Some furniture may also be grouped into fixed or movable. Furniture design also takes into consideration furniture that complements each other, for example, a chair and table. Smooth, clean, geometric shapes are essential for contemporary style furniture pieces. Upholstered furniture often wears black, white, or other neutral tones in textured natural fibers. Cover it in a neutral, black, or bold fabric. Fabrics often have a natural look found in wool, cotton, linen, silk, jute, and add textural appeal. Furniture pieces should be simple and uncluttered, without curves or decoration. Sofas, chairs, and ottomans have exposed legs.

Furniture can be classified into movables and non-movables. Another type of classification of furniture can be according to the type of material they are made of. Materials used to make furniture are metal, glass, wood, and plastic. Wood furniture is either made of soft woods which are evergreens, or
hardwoods which are deciduous. Softwoods are used for residential grade Furniture. Hardwoods are used to construct seating frames, base cabinetry, and solid furniture. Hardwoods make good surface finishes. Veneers are thin sheets of wood that are glued to base materials, then stained and finished. Premium pieces should be veneered on both sides of each board for stability. These pieces can be very decorative depending on the placement of veneers.

These metals include steel, aluminum, and alloys. Steel is strong but will rust if not properly treated with plating or painting process. Stainless steel is very expensive and used only in areas where high durability is required. Aluminum is not as strong but does not rust. The finishes on metal furniture should not chip which will almost always lead to rust and corrosion. Glass is mainly used to make table tops. Glass consists of different Thicknesses. Thick glass is stronger hence the most preferred for furniture.

**Figure 20:** Structured low tables

Source: www.flickr.com
Figure 21: Lounge seats

Source: lounge_seats.com

Figure 22: Modern bench

Source: modern_benches.com

Figure 23: Ramen stools

Source: trendy_stools.com
2.8 Landscaping
Plants are known to have a psychological calming effect on people and hence free standing plants are encouraged to be placed in buildings. Sansevieria, also called snake plant or mother-in-law’s tongue, is a common plant found at most garden supply stores. The plant, although not rare, is remarkable in its ability to convert large amounts of carbon dioxide into oxygen, as well as its effectiveness in removing certain indoor pollutants from the air. All species can be divided into one of two basic categories based on their leaves: hard leaved and soft leaved species. Typically, hard leaved Sansevieria originates from arid climates; while the soft leaved species originate from tropical and subtropical regions.

**Figure 24:** Sansevieria plant

Source: http://www.ehow.com

**Philodendron:** The leaves are usually large and imposing, often lobed or deeply cut, and may be more or less pinnate. They can also be oval, spear-shaped, or in many other possible shape variations. The leaves are borne alternately on the stem. An interesting quality of philodendrons is that they do not have a single type of leaf on the same plant. Instead, they have juvenile leaves and adult leaves, which can be drastically different from one another.
The leaves of seedling philodendrons are usually heart-shaped.

**Figure 25:** Philodendron

![Philodendron](http://www.ehow.com)

**Source:** http://www.ehow.com

**Peace Lily:** It has been said also eliminate airborne mold spores, and is ideal for air tight spaces; purify the air of trichloroethylene, a chemical that is found in cleaners and solvents; and elimination of alcohols, acetone and formaldehyde. It prefers much water, less often and bright indirect light. Long elongated green foliage with white half shaped blooms characterizes the Peace Lily plant. Thriving in lower lighted areas makes this plant work almost anywhere.

**Figure 26:** Peace lily

![Peace lily](http://www.ehow.com)

**Source:** http://www.ehow.com
**Bromeliads**: Bromeliads thrive on neglect since they can withstand a wide range of indoor conditions with minimal care. They bloom only once in his life and the flower lasts about three months. Once flowering, the plant stops producing leaves and grows on other plants of baby that grow and bloom in two or three years.

**Figure 27**: Bromeliad plant

![Bromeliad plant](http://www.ehow.com)

**Source**: http://www.ehow.com

Bromeliad is a tropical plant and typically survives only in landscapes that are in zones 10 or 11. Bromeliads plants can grow to be huge, reaching 10 to 14 feet in height and several feet in width. Like the indoor bromeliad plants, outside bromeliads needs loamy, organically rich soil that drains well. Watering is crucial for the bromeliads, particularly in the first year after planting. Regular, weekly deep watering to maintain an even, moist ground is preferred over frequent light watering or water-logged ground. Placed in direct afternoon sunlight, your bromeliads may develop black spots on its leaves because the direct sun is too hot. Partial shade is where the bromeliads will grow best. These plants brighten up the inside space and create a healthy environment. To purify and renew the stale air to filter toxins, pollutants and carbon dioxide
which exhale and replace the air with oxygen of life. These plants also filter pollutants generated by it equipment, furniture, paint and air conditioners.

2.9 Summary
From literature review, it emerged that there is indeed an opportunity for application of human centered principles in galleries interiors spaces both globally and locally. It is important for interior designers to apply and use human centered design principles in their projects as interiors need to be conducive for the intended final user and not just aesthetically pleasing. However, interior designers are likely to encounter various barriers in application of human centered design in interior spaces. The researcher aims to investigate and establish what those barriers are likely to be.
CHAPTER 3

3.0 RESEARCH METHODOLOGY

3.1 Overview
In this Chapter, the research methodology is discussed. A qualitative research approach will be employed for this study. Aided by this research approach, the research study aims to establish whether human centered design inspired by contemporary design can be incorporated into design of Nairobi gallery. Ethical clearance will be obtained from the University of Nairobi prior to commencing with the field study. Methodology will include collection of primary and secondary data and qualitative methods. This will be a qualitative research employing mainly inductive reasoning based upon its objectives. Secondary data will be collected through the review of literature concerned with the subject matter from publications such as books, reports, articles, journals, academic papers as well as web sources. Much of the information therefore will be collected through unstructured interviews, non-participant observation, and examination of records. Analysis of the data collected will involve field notes, narratives, records and visual observations that can only be submitted as photographs.

3.2 Research design
This chapter focuses on the research methodology and design selected for this proposed research, which incorporates the overall structure of the study and the techniques used for data collection and analysis (Polit & Beck 2010). Bowling (2002) highlights the importance of choosing the appropriate research method. There are two approaches used in research, qualitative and quantitative research. Qualitative research aims to help understand social phenomena in a natural rather than an experimental setting while emphasizing the experiences, attitudes, and views of the participants rather than providing quantified answers to a question (Nieswiadomy 2008). Qualitative research
obtains data usually in the form of words, based on observations and interviews, rather than numbers which is the basis for quantitative research (Fawcett & Garity 2009).

Qualitative research focuses on obtaining deep and meaningful information from small groups which fulfill certain criteria set out by the researcher (McCartht & O’Sullivan 2008) and has the ability to assist with guiding future nursing practice (Barroso 2010). In contrast to this, quantitative research uses numerical data to obtain information about the environment and surroundings. It is used to test theories and examine relationships between variables (Burns & Grove 2011).

There are different research designs within qualitative research which include phenomenology, grounded theory, exploratory, and descriptive (Burns & Grove 2011). In this study, a descriptive qualitative approach will be used to explore the research question as this is well suited to the study of human experiences within the gallery and will aim to gain an understanding of interior designers’ experiences of the interior environment within the gallery. Most of the data will be presented in descriptive form.

3.3 Target Population and Sampling

The population is the entire group of people the researcher wishes to obtain knowledge from. A selection of these individuals is taken from this population and is known as the ‘sample’ (Gerrish & Lacey 2006). The sample will provide the information and data for the study. According to Parahoo (2006) non-probability samples can be useful with qualitative research as “the purpose of qualitative research is to contribute to an understanding of phenomena” and the sample can be ‘chosen’ to best provide the required data for the study.

Within qualitative research, the main types of sampling include convenience, purposive, cluster, volunteer, random and snowball (Bloom & Trice 2007). As the author intends to specifically target visitors within the gallery, purposive
sampling will be used, as the sample is chosen deliberately, “on the basis that those selected can provide the necessary data” for the study (Parahoo 2006). This allows the researcher to pick a selected group of individuals most appropriate to answer the questions and select the specific information sources required to gain insight into the research study (Burns & Grove 2011). As this research will be self-funded with limited time available for the study, this sample technique and size will allow for easy access as it is cost effective.

The unit of analysis will be ten (10) visitors out of the estimated 12. Elaborate field investigation, snowballing method and elimination will be used to identify the 10 visitors who can be said to be sample of the target population which fit the criteria for the investigation. Out of the 12, the researcher will interview at least 8 of them which represent eighty percent (80%) of the population. The staff at the gallery will also be useful in gaining insight about the gallery environment. The table below provides an outline of the interior designers and other subjects who will be interviewed.

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>No. of subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Visitors</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>Staff</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>12</td>
</tr>
</tbody>
</table>

Table 1: Distribution of sample (Author 2013)

3.4 Data collection

Qualitative researchers may use different approaches in collecting data, such as interviews and group discussions, observation and reflection field notes, various texts, pictures and other materials. Primary sources of data were drawn from respondents in the field. Secondary sources of data were acquired from books, magazines, newspapers, and papers. The researcher may rely on the following methods for gathering information: Participants, non-participant,
observation, field notes, reflexive journals, unstructured interviews, and analysis of documents and materials.

3.4 Data analysis

According to Burns & Grove (2011) data collection and data analysis occur simultaneously in qualitative research, as the emerging results may require further data collection. The author believes this validates the use of the chosen small sample size. The storage of data will be done in an organized, secure manner. Hand written information will be typed into a word document for electronic secure storage with correct dates, locations and identities.

3.5 Data presentation methods

Most of the data will be presented in narrative, describing the current situation at Nairobi gallery interior and exterior environment. Photographs via a digital camera will be presented complemented by descriptions to explain the circumstances and their relevance to the research. There are several factors within the site which cannot be well presented without photographs as this gives a more detailed visualization of the site. Notes that will be used during informal discussions will be analyzed and presented in narrative. Field notes will be transcribed and clustered accordingly according to the research objectives. Sketching was also used to capture some details.

3.6 Summary

The methodology adopted for the research will mainly be qualitative. Data will be collected using social and design methods. Survey will be employed from social research, while design research methods of photography will also be employed. Data collection tools will include non-participant observation, unstructured interviews, and photography and note books. Field notes will be analyzed and presented as narrative, tables and photographs, complemented by descriptions.
CHAPTER 4

4.0 PRESENTATION, SITE ANALYSIS AND INTERPRETATION OF FINDINGS

4.1 Introduction
From the research, Nairobi gallery design does not adequately exhibit contemporary design through its interiors, furniture, exhibition and display and landscaping. The gallery interiors are old, unmaintained and lack color attraction as all the walls are a monotonous white. The outside area does not contain any landscaping. The atrium area has dated furniture and is not attractive to visitors upon entry. The seats in the gallery documentary room are made of plastic and do not show any form of contemporary design inspiration. Generally, the area lacks proper co-ordination in all aspects of interior design in order to bring out the contemporary design inspiration. Interior design has not been well implemented in the gallery.

4.2 Presentation of findings
4.2.1 History and background information
The old PC building was first used by colonial government as the office of the native ministry where births, marriages, and death certificates were issued, hence the nickname ‘Hatches, matches and dispatches.’ Before independence, the building became a colonial courthouse where natives accused of entering Nairobi without a pass were tried and sentenced. One Mzee Titus Mwai Mugo was tried and sentenced here severally. He identifies the room within the house which served as judge’s chambers, holding cells, string room and the safe where cash and guns are kept. Because of its historical significance, the old PC house was later gazetted by the government in April 1993 and declared a monument in 1995; the building was then handed over to the National museums of Kenya for preservation purposes. Renovation to restore the building to its original state was completed by the national museums of Kenya in September 2005. Since then the renamed Nairobi gallery hosts temporary exhibitions from the National Museums of Kenya and stakeholders in the...
cultural landscape.

4.2.2 Observation
Most of the visitors who visited the gallery were of the young generation with rare aged people if any. Visitors consisted of different ethnicities with most being foreigners. Upon arrival, most visitors tend to move towards the left side of the gallery and exit from the right side of the gallery. There was also a tendency for visitors to gather at the atrium discussing the artworks as well as observing the intricate historical interior details of the atrium. Upon leaving the gallery, most people tend to hang around the compound taking in all they’ve seen while waiting on each other. The gallery assistants spend most of their time at the atrium as they have an overall view of the galleries from the atrium. Most of the visitors did not bother sitting at the documentary room but merely glanced and continued with their tour of the gallery.

4.2.3 Informal discussions
From the informal discussions held between the visitors, management and staff at the gallery, the researcher was able to take down relevant notes on different views and opinions of the respondents. Most visitors felt the gallery was ordinary and thus this affected how they viewed some of the artworks. Nothing in particular stood out to them about the gallery except the dome shaped roof of the atrium. The monotonous white color in all the galleries was boring as described by some visitors as they would have preferred to see a bit of color variety as you move from room to room. The floor with missing tiles was also displeasing to the visitors. Another factor was lighting which was very dim in some rooms thus some visitors preferred avoiding this rooms all together especially the rooms on the right side of the gallery. In general, most visitors felt the interior could improve so as to be at par with other galleries they had visited which were modern and trendy according to them. The management was also very open to the idea of switching up the interior of the gallery so as to appeal to more artists and visitors. The staff did not say much on the interior but their main concern was lack of enough seating areas.
4.3 Analysis (Pictorial and Theoretical)

4.3.1 Site location

Nairobi Gallery is a destination gallery. It is located in Nairobi off Uhuru highway at the junction between Uhuru highway and Kenyatta Avenue. One can access the restaurant from 3 main areas: Uhuru Highway, Kenyatta Avenue and the general post office.

Figure 28: Google map image of Nairobi gallery

Source: Google maps

4.3.2 Interior design

The general building materials used for construction consist of stone, tiles, wood and glass.

Figure 29: Main corridor

Source: Author 2013

The main hallway that leads to the atrium is poorly lit as seen with track lights
of which some are burnt out. The tiled floor finish has a very dull color which
does not compliment the walls. The tiles which are made from ceramic are
noisy when stepped on with high tension shoes thus can be noisy to those
within the gallery. The fire extinguisher at the far end is dangerously placed as
it’s within reach of toddlers.

**Figure 30: Gallery**

![Gallery Image](image1)

**Source:** Author 2013

The gallery is very poorly lit and can be very straining for people with eye
problems. The artworks are not illuminated well and some disappear within
the shadows created by poor lighting especially the artworks with dark colors.
The walls in all galleries are white which is very monotonous to visitors and
does nothing to enhance the art works on display. The floor made from
ceramic tiles is worn out and faded. Some tiles are missing which is hazardous
as someone may trip lose their balance. The furniture consists of a grey
wooden block placed at an angle.

**Figure 31: Documentary room**

![Documentary Room Image](image2)

**Source:** Author 2013
The documentary room has track lights placed in a rectangular rail on the ceiling which is not appropriate lighting for the function of the space. The window on the right side is large which allows a lot of light in and can be destructive while viewing the documentaries. There’s no window blinds to contain these. The chair made of plastic are also uncomfortable for long use as some documentaries take more than an hour. The chairs when moved are noisy as the floor finish is ceramic tiles. The television set used for viewing purposes is very small and someone sitting at the back would have to strain. It’s also placed on a low stand which can easily be knocked over.

**Figure 32:** The atrium

![Image](image_url)

**Source:** Author 2013

The atrium consists of a round table covered in black cloth with grey wooden blocks as seating areas. The cushions are worn out. The black cloth dulls the space more. The tiles are ceramic with geometric shapes. The dome shaped ceiling consists of four circular windows which let light in. the walls have English architectural features with a lot of molding and strategically placed columns.

### 4.3.3 Landscaping

#### 4.3.3.1 Climatic and general environment analysis

The site is located in Nairobi and therefore experiences tropical upland climate with hot day temperatures and cool night temperatures. The site falls within the tropics and is therefore always under maximum insolation. It experiences two rainy seasons, the long rains around March and the short rains around...
September. The site is well covered by the sun path. The site experiences cool morning and night time temperatures with an average of 22 degree Celsius and hot daytime temperatures of 30 degree Celsius during hot months. The area consists of hard landscapes and plants. The hard landscape consists of paths and walls while plants are mainly potted and trees. The building receives electricity on a constant supply throughout the day from the main electric grid. Nairobi Gallery receives its water from the main town’s water supply grid.

4.3.4 Site inventory

Figure 33: Paving materials for landscape

Source: Author 2013

The entrance has been paved using brick and concrete. There’s potted plants placed at the entrance made out of concrete. There’s also an information desk and notice board at the entrance. The perimeter wall consists of bricks with railing and climber plants. The main entrance from the gate is accessed through Nyayo house parking lot.

Figure 34: Main entrance

Source: Author 2013
The main entrance to the gallery consists of a narrow doorway with a notice board and desk. This brings unnecessary traffic at the entrance which may be discouraging to people who would like to enter the gallery. A worn out ramp made from wood has been placed at the entrance and is a health hazard as it could snap at any time. The steel gates don’t have stoppers thus may hit someone due to strong winds. The white rooftop paint at the entrance is also worn out and stained from various environmental factors such as dust.

### 4.3.5 Furniture
Nairobi Gallery consists of movable furniture: Movable furniture comprises of tables and chairs. Furniture at Nairobi Gallery is placed indoors. One way of categorizing furniture is according to its placement i.e. gallery furniture, lounge area furniture and video room furniture. Nairobi Gallery being a public place, the furniture is therefore used by a wide range of people i.e. children, adults, old, able and disabled. The general materials used to make the furniture are wood, plastic, and metal. The furniture is used as surfaces, for storage and for seating.

**Image 35:** Types of gallery furniture

![Image showing types of gallery furniture](image)

**Source:** Author

The gallery sitting consists of a wood block which is 800 x 400mm and grey in color. The bench is stained with dirt especially at the edges and bottom area. The height of the bench is 500mm. the edge corners are very sharp and pose
health hazards to children. The bench being heavy makes it hard to move around. The hard sitting surface makes it uncomfortable to sit on after a while.

**Figure 36:** Atrium area furniture

![Atrium area furniture](image)

**Source:** Author 2013

The atrium furniture consists of two benches and a round table covered in a black cotton cloth. The table is made of a wooden surface and metal legs while the benches are made from wood block. Like the gallery benches, the benches are grey in color though they have cushions which make them a little more comfortable. The benches are stained with dirt especially at the bottom.

**Figure 37:** Video room furniture

![Video room furniture](image)

**Source:** Author 2013

Green plastic seats have been used as seating for the video room. The plastic seats are durable and easy to clean. These seats however are not comfortable for long durations such as the time most documentaries take.
The front entrance information and signatory desk is made from wood painted black with a white strip at the bottom. The desk is stained and the paint is cracked and chipping due to the exposure to different weather conditions.

4.3.6 Exhibition and display
The gallery has little displays and mainly exhibits items such as artist’s artworks, entrance signs, door signs, smoking zone signage and emergency doors signage. The displays are targeted at the general population that visits the gallery. The modes of display used are: mounted aluminum display panels as the entrance sign, plastic tag signs and mounted art works.

Plastic door tags have been used as directional signs to show emergency exits and instructions on how to open or close the door but no signage has been used to show the function of the room.
The entrance signage to Nairobi Gallery is an aluminum plate with the galleries name printed on a metallic plate though not framed. The sign is placed at the upper part of the entrance towards the left and cannot be easily. The signage is really small when compared to the background.

The gallery uses a 36 inch TV for viewing of documentaries. The TV is old and outdated in design. It’s placed on very low wooden stand therefore not visible to all especially those at the back of the room who have to strain. It also appears messy as the wires and extension cable are left out in the open which could be a potential health hazard.
CHAPTER 5

5.0 SUMMARY AND RECOMMENDATIONS

5.1 Introduction

This chapter will discuss the conclusions of what was found out from the site and the recommendations of what should be done in order to improve the picture of the gallery. This chapter is divided into two sections. The first section synthesizes the major conclusions of the study and the second contains the recommendations for the solutions of the problems the Nairobi gallery is facing at the moment. From research, the aesthetic nature of a gallery affects greatly the choice of gallery selection by visitors. Interior design, landscaping design, exhibition and display and furniture design can be used to exhibit contemporary design in a gallery. Human-centered design however is important in gallery design to make it conducive to the greatest extent possible for people.

5.2 Conclusions

Based on the analysis and the data collected, this research report has come up with the following conclusions regarding the Nairobi Gallery:

- The gallery is 100 years old. The gallery should therefore embrace a contemporary theme to blend with the modern times but still retain its exterior architecture to preserve its history. The museum should upgrade its exhibition design, lighting design for displayed artifacts, suitable colors for exhibition rooms and good landscaping concepts suitable for the space.

- The building was not constructed to serve the purposes of a gallery. The rooms were not constructed with exhibition spaces in mind and so are not very conducive for gallery spaces. The building served as offices for the colonial government and later the provincial commissioner. The galleries thus served as offices thus not all are spacious. The entry hallway is also very narrow as not many people were expected to be in the building at the same time. Since some
galleries are small there will always be collision of visitors as they try to move around the gallery to view the exhibits.

- The gallery has no proper techniques for display of information about the various artists works exhibited thus visitors are left wondering about the artworks and the origins.
- The lighting in the gallery does not befit the exhibition design lighting. Some of the track lights are old and burnt out. Some gallery spaces do not have enough lighting sources thus are very dull. The entry hallway is poorly lit.
- The color used throughout all the galleries is white which is very monotonous and needs reaplication. The floors are tiled though some are missing.
- The connection between the galleries and the exterior is through the grilled windows fixed on specific sides of the walls of each room. The entire natural light received within the gallery comes from these windows and the main door. The atrium consists of a dome shaped ceiling with four circular windows which allow light in.
- The gallery has limited parking spaces for visitors thus visitors always park their cars around the town and come on foot.
- After the visitors are done with their visitation of the exhibits in the gallery, they require some place outside the gallery where they can relax and wait for their friends or relatives who may still be in the gallery. They will also have time to relax and reflect on the art they’ve just seen. This type of facility lacks in the vicinity of the compound of this gallery.
- No dustbins were seen within the compound of the gallery.

5.3 Recommendations
Based on the recommendations made above, this research makes some recommendations on what could be done in order to improve the interior, exhibition, lighting and exterior design of the Nairobi gallery. The recommendations suggested are as follows:
- Some of the museum exhibition spaces are small thus careful consideration should be made on the types of artworks that can be displayed. These galleries should be used for display of artworks such as scaled photographs. The bigger
galleries can accommodate exhibition stands, seating areas and additional panels for exhibiting more artworks. This will all be achieved through incorporation of human-centered design principles.

**Figure 42:** Inspired contemporary art gallery

![Inspired contemporary art gallery](www.flickr.com)  
Source: [www.flickr.com](http://www.flickr.com)

-The outlook of the redesigned exhibition space should be inspired by a contemporary theme which consists of clean lines in the design of furniture, striking color and smooth surfaces with intricate designs.

**Figure 43:** Art gallery

![Art gallery](Google images)  
Source: Google images

-Contemporary design is typically offset by neutral colors. When painting walls, shades of brown, taupe, cream or pure white are recommended. Metals like stainless steel, nickel and chrome are very popular in contemporary design.
because they provide a sleek finish and clean look. Metal can be applied in
design of furniture concepts. When it comes to choosing wood surfaces,
contemporary designs usually feature very light or very dark tones. Wood
surfaces would be appropriate for the floors and furniture concepts.

**Figure 44:** Sculpture gallery

![Sculpture gallery](source: Google images)

-Lighting is very important in contemporary design, because it’s key to
illuminating the galleries design. There are many lighting choices available to
provide interesting, clean lines to accent your contemporary design. Popular
fixtures include track lighting, pendants and floor lamps. Pinpoint lights should
be used for self-standing objects like sculptures.

**Figure 45:** Track lights

![Track lights](source: photostopvt.com)
The research recommends the atrium should be used as a temporary rest area for the visitors though the main rest area should be outside the gallery with appropriate landscaping to compliment it. Interior landscaping should be applied to the atrium area to open up the space. Use of appropriate indoor plants is recommended. Appropriate lighting should also be used for the atrium area and outside seating area when it gets dark.

The landscaping concept recommended is minimalistic with plants which are not only aesthetically appealing but useful e.g. Sanseviera plants which clean indoor air pollutants and give out oxygen. Potted plants will be used outside especially around the seating areas, along the fencing and entrance area.

Source: [www.habitat.com](http://www.habitat.com)

Source: [www.flickr.com](http://www.flickr.com)
5.4 Summary
From the beginning of this research, problems and reasons for doing the study have been given. Literatures concerning the problem have been studied and an analysis of the site done. Conclusions of the findings have been given and recommendations made. With implementation of these recommendations, the museum will be at par with other modern galleries and gain the recognition and appreciation it deserves.
GLOSSARY

Exhibition – A public display, as of the work of artists or artisans, the skills of performer’s, or objects of general interest in a museum or gallery.

Exhibit – 1) An object or a collection of objects shown in exhibition, fair, etc. and 2) to place on show

Curator – the person in charge of a museum, gallery, art collection etc.

Visitor – a person who goes to a museum for reasons of friendship, travel, education, leisure or the like.

Lighting – something that makes things visible or affords illumination.

Gallery – 1) A building, an institution, or a room for the exhibition of artistic work. 2) An establishment that displays and sells works of art. 3) A photographer’s studio. 4) A collection; an assortment
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