



UNIVERSITY OF NAIROBI

College of Architecture and Engineering

School of the Arts and Design

BDS 413: PROJECT PAPER

(Interior Design Specialization)

INTERGRATING MOROCCAN ART AND ISLAMIC GEOMETRY WITH
ECLECTICISM FOR AESTHETICALLY APPEALING SPACES

Gar gaar barbeque restaurant

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Project paper submitted in partial fulfillment of the requirement for the Bachelor of Art in Design Degree submitted to the school of the Arts and Design, University of Nairobi.

14th April, 2020

DECLARATION

I Fatuma Gollo Halake, hereby declare that this is my original piece of work and it has not been presented for the award of Degree in any other university. Where ideas of other scholars have been used, I have clearly indicated in a standard way.

To the best of my knowledge I have not committed any plagiarism or deliberate omission in the acknowledgement of original works by others.

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Signature..... Date

DEDICATION

I dedicate this paper to God Almighty for seeing me through my education and life and for faithfully bringing me this far.

I also dedicate this paper to my parents. Mr Golo Halake (my father), who has been very generous in funding my education, providing guidance and motivation throughout the years. I will forever be grateful for everything. My mother Mrs Sofia Sh Adan, who has been my support system throughout the years, always telling me I can be anything I want to be in life and for believing I could achieve anything.

For my parents bringing me up to believe that I could do anything that I set my mind to do and always praying for me. She taught me to be religious, strong, follow my dreams, pursue my passion and develop my talents. I could not make it this far without your support mom who was with me all the way and even for tolerating me through my years of learning.

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ABSTRACT

Eclecticism in art and architecture, the combination of artistic elements of diverse origin; the phenomenon usually occurs during the period of decline of major artistic trends.

Elements of eclecticism are noticeable in late ancient Roman art, mainly in the combination of forms borrowed from Greece, Egypt, and Southwest Asia. The artists of the Bolognese school favored eclecticism, believing that they could attain artistic perfection by combining what in their opinion were the best aspects of works by the great masters of the Renaissance.

Eclecticism is characteristic of the architecture, especially the interior design, of the middle and second half of the 19th century, when different motifs were mixed indiscriminately, including those of the Renaissance and rococo styles; however, the eclecticism typical of 19th-century architecture and design, with their universal range of architectural and ornamental motifs, had a significant impact on the birth of *art nouveau*, which was essentially a distinct, integral style although influenced by the most diverse sources.

The research paper will be sectioned into five chapters. Chapter one will describe the introduction and background leading to this study, problem statement, objectives resulting into research questions, significance of this study to the design industry and the scope of the research, as well as the limitations and finally the justification of the study. Chapter two entails a critical analysis of theoretical literature on Moroccan art forms, materials used in the Moroccan art and Islamic geometric patterns especially Zellige tiles from morocco and how it has contributed to aesthetical trendy interior design environment. Chapter three will outline the research design adopted by the researcher, the Methodology used by the researcher to collect, analyse and present data of this study. Chapter four will contain a qualitative and quantitative analysis of Gar gaar restaurant– the case study to this research, the presentation and interpretation of findings then lastly, chapter five will be a summary of the findings, and the researcher’s recommendations on the four thematic areas of interior design for the site.

Table of Contents

DECLARATION	i
DEDICATION	ii
ACKNOWLEDGEMENTS	iii
ABSTRACT	iv
INTRODUCTION OF THE STUDY	1
INTRODUCTION	1
BACKGROUND OF THE STUDY	1
STATEMENT OF THE PROBLEM	2
OBJECTIVES OF THE STUDY	2
RESEARCH QUESTIONS	2
SIGNIFICANCE OF THE STUDY	3
LIMITATION OF THE STUDY	3
THE SCOPE OF THE STUDY	3
SUMMARY	4
LITERATURE REVIEW	4
INTRODUCTION	4
GUIDELINES TO ENSURE A BEAUTIFUL ECLECTIC MASTERPIECE	6
PATRICIA URQOILA	8
HICHLAM LAHLOU	11
MAIN INSPIRATIONS	12
NORTH AFRICA	13
MOROCCAN STYLE	14
ISLAMIC ART	14
ISLAMIC GEOMETRIC PATTTTERNS	15
FORMATION OF PATTERNS	15
ZELLIGE	21
Process of making Zellige	22
DESIGN PROCESS	23
SUMMARY	25
RESEARCH METHODOLOGY	25
INTRODUCTION	25
RESEARCH STRATEGY	25
Research approach	26

Data collection method and tools.....	29
SITE ANALYSIS, PRESENTATION AND INTERPRETATION OF FINDINGS	30
Introduction	30
Qualitative Analysis.....	30
Geographical Location	30
.....	31
Climatic Conditions	31
The current floor plan allows human traffic without much disruption.	38
The restaurant has a colour scheme of orange, brown, black and white. The colour scheme is seen through the wall paints and furniture colours.....	38
The current plan has only two windows situated around the door. The lighting is artificial without much use of natural light.	38
.....	38
The windows and door are all along the width of the establishment as seen in the previous image.	38
.....	39
The existing exhibition is menu lighting which is popular and trendy and a green refrigerator that is underwhelming.....	39
The establishment has minimal landscape design. There are a few potted plants at the entrance of the space.....	39
QUANTITAVE ANALYSIS	39
SUMMARY OF FINDINGS, CONCLUSIONS AND RECCOMENDATIONS	40
Introduction	40
Recommendations	41
Interior Architecture Recommendations and suggestions	42
WOOD	43
HARDWOODS.....	44
OAK	44
INSULATED CONCRETE FORM.....	46
BAMBOO	47
FLOORING	47
CEILING.....	48
LIGHTING.....	49
LANDSCAPE RECOMMENDATIONS	50
PLANTS AND SHRUBS.....	51

CROTON	51
VARIEGATED DURANTAS HEDGE PLANT	52
Blue Fescue	52
HARD LANDSCAPE	53
OUTDOOR LIGHTING	54
EXHIBITION AND DISPLAY	56
SUMMARY	58
Suggestion for Further Study	58
REFERENCES	59
REFERENCES	60
REFERNCES	61
REFERENCE	61

FIGURE 1; ECLECTIC SPACE (DAYDREAMDECOR.COM) FIGURE 2; ECLECTIC SPACE (WORDPRESS.COM)	8
FIGURE 3; PATRICIA’S WORK (SOURCE: THE GLOBE AND MAIL), FIGURE 4; (SOURCE: HAWORTH.COM)	10
FIGURE5; PATRICIA’S INTERIORS (SOURCE: DESIGNBOOM.COM)	11
FIGURE 6; PATRICIA’S INTERIORS (SOURCE: DESIGNBUILDIDEAS.EU)	11
FIGURE 7; GEOGRAPHIC LOCATION (SOURCE: GOOGLE MAPS)	31
FIGURE 7; AVERAGE TEMPERATURE (SOURCE: WORLDWEATHERONLINE.COM)	32
FIGURE 8; AVERAGE RAINFALL (SOURCE: WORLDWEATHERONLINE.COM)	33
FIGURE 9; AVERAGE SNOW (SOURCE: WORLDWEATHERONLINE.COM)	33
FIGURE 10; AVERAGE WIND SPEED (SOURCE: WORLWEATHERONLINE.COM)	34
FIGURE 11; AVERAGE WIND PRESSURE (SOURCE: WORLDWEATHERONLINE.COM)	34
FIGURE 12; AVERAGE UV INDEX (SOURCE: WORLDWEATHERONLINE.COM)	35
FIGURE 13; AVERAGE SUNLIGHT (SUNLIGHT; WORLDWEATHERONLINE.COM)	35
FIGURE 14; AVERAGE VISIBILITY (SOURCE: WORLDWEATHERONLINE.COM)	36
FIGURE 15; AVERAGE HUMIDITY (SOURCE: WORLDWEATHERONLINE.COM)	36
FIGURE 16 AND 17; SITE PICTURE (SOURCE: PERSONAL CAMERA)	38
FIGURE 18; SITE PICTURES (SOURCE: CAMERA)	38
FIGURE19; EXHIBITION (SOURCE: CAMERA)	39
FIGURE 20; LILIES (SOURCE: GOOGLE)	50
FIGURE 21; CREEPING OX-EYE (SOURCE: PINTEREST)	51
FIGURE 22; IMPATIENS (SOURCE: PINTEREST, 2019)	51
FIGURE 23; CROTON (GARDENSLOVER.COM)	52
FIGURE 24; DURANTAS (TORONURSERY.COM)	52
FIGURE 25;BLUE FESCUE (SOURCE: MYROOF.COM, 2019)	53
FIGURE 26; CONCRETE PATHWAYS (LANSCAPEORDERINGS.CO.NZ)	53
FIGURE 27; MOROCCAN OUTDOOR TILING(PINTEREST)	54
FIGURE 28 AND 29; OUTDOOR LIGHTING (SOURCE: CONTEMPORIST.COM)	54
FIGURE 30; LANTERNS (SOURCE: CONTEMPORIST.COM)	55
FIGURE 31;HIDDEN LIGHTING(SOURCE:CONTEMPORIST.COM)	55
FIGURE 32; UPLIGHTING (SOURCE: CONTEMPORIST.COM)	56
FIGURE 33; ORBS LIGHTING (SOURCE: CONTEMPORIST.COM)	56

FIGURES 34, 35 AND 36; MOROCCAN FOUNTAINS (SOURCE: MOORISHARCHITECTURE.COM).....58

INTRODUCTION OF THE STUDY

INTRODUCTION

This chapter addresses the background of the study, the problem statement and other aspects of the research that are vital in gathering data on the case study. This chapter also covers the scope of the study as well as the limitations and significance of the study.

BACKGROUND OF THE STUDY

The research is centered in Eastleigh, which also serves as a business hub. It being a business hub means major hotels and restaurants. The general place is quite affordable and easily accessible by both public and private transport. The area is predominantly Somali, who are mostly Muslims hence the reason behind using Moroccan culture specifically zellige tiles that incorporate Islamic geometry so brilliantly. The tiles embrace geometry because Islam forbade human or animal figures.

Zellige is an ornamental Moroccan handicraft technique of tilework. In Arabic zellige means “little polished stone” and is similar to azulejo, a practice based in Spain and Portugal. The technique involves assembling differently coloured and shaped fragments of glazed terracotta tiles to form geometric patterns that can be repeated endlessly. The technique appeared in morocco in the 10th century, and it is believed that its basic purpose was to create a local version of Greco- roman mosaics. However, many Islamic sects forbid the figurative representation of living creatures or people in art. Thus their decorative art generally features basic shapes in geometry, such as diamonds, squares, triangles, stars, crosses or some less structural or mathematical forms that create interlacing and tessellated patterns. The other difference was in regard to the technique. Mosaics were an assemblage of pieces of polished marble and zellige was made of earthen ware tiles in coloured fragments.

When this craft first appeared in morocco, the tiles used were mainly of brown and white. An important event for expanding this technique was the Moorish invasion of Spain. Al-Andalus was under the Moorish control and the following dynasties for further popularization of zellige; the Almoravides, Almohads and the Berber nomadic Marinids. In the 14th century, the highest level of perfection and sophistication in decoration

flourished. At that time zellige were used for almost all available type of architecture, from palaces, fountains and baths to patios and tombs.

The research involves the complicated and yet simple eclecticism, a philosophy that can easily turn chaotic if not done carefully. There is a fine line between a disorganized space and an eclectic interior. The style is all about harmony and the coming together of disparate styles, juxtaposing textures and contrasting colours to create a cohesive, beautifully realized room that would not be out of place in a home décor magazine as this is one design that takes verve and a great eye. Eclecticism is all about mixing and getting something new in the process, adds in the factor, that is the Moroccan art with its wealth in colour and culture and you have something new and aesthetically appealing.

STATEMENT OF THE PROBLEM

The hotel although performing fairly well lacks a theme, the design in play could use a little touch up and it has traffic issues due to the arrangement of furniture.

OBJECTIVES OF THE STUDY

The study aims to establish how to marry Moroccan art with eclecticism to make a more appealing and cultural space while promoting the hotel in ranks.

SPECIFIC OBJECTIVES

To establish the current design inspirations and the role it plays in portraying the hotel

To explore how to incorporate Moroccan art and eclecticism in the interiors of the space

To investigate the cultural impact of Islamic art and geometry in the immediate community

To propose ways to spruce up the space by using Moroccan art and eclecticism

RESEARCH QUESTIONS

How to incorporate Moroccan art with eclecticism to make a more appealing space?

SPECIFIC RESEARCH QUESTIONS

What are the current design inspirations and the role it plays in overall image of the hotel?

How to incorporate Moroccan art and eclecticism in the interiors of the space

What is the cultural impact of the Islamic art and geometry in the immediate community?

In what ways can a space be spruced up by using Moroccan art and eclecticism?

SIGNIFICANCE OF THE STUDY

The study can be used for referencing for future researchers as well as a secondary or tertiary source.

LIMITATION OF THE STUDY

THEMATIC SCOPE CONSTRAINS

The research is limited to interior design field and how eclecticism infused with Moroccan art can be explored to make a hospitable and aesthetically appealing space. The researcher will focus only on eclecticism philosophy and Moroccan art for inspiration which is a limitation as it will be applicable to few interested parties.

TIME CONSTRAINTS

The research has a slotted period of approximately two months which is insufficient for in-depth research and study. It also limits the solutions and comprehensive recommendations that could be achieved with more time.

THE SCOPE OF THE STUDY

CONCEPTUAL SCOPE

The research is confined to the four thematic areas of interior design; interior architecture, landscaping, furniture design and exhibition and display. The researcher

intends to consider the four major areas in the proposed solutions. Exhibition and display for the reception, interior architecture and furniture design for the dining space.

CONTEXTUAL SCOPE

The researcher will include how to achieve an eclectic space without it looking disorganized and chaotic. Eclecticism will be the underlying philosophy that holds together the design proposed and the design recommendations.

GEOGRAPHICAL SCOPE

The study is centered in Eastleigh a suburb of Nairobi, Kenya. It is located in the east central business district. It has been referred to as “a country within a country with its own economy” on account of its robust business sector. The study zeroes in on the Gar gaar barbeque restaurant.

SUMMARY

The chapter began with a simple introduction that built up to a background study that was a briefing of what to expect in the research. The researcher states the problem, objectives and research questions that are derived from the objectives. The chapter also gives the scope and significance of the study.

LITERATURE REVIEW

INTRODUCTION

It is also referred to as *selective philosophy*. It is the practice of selecting doctrines from different systems of thought without adapting the whole parent system of each doctrine. Eclecticism is common in interior design as designers have gotten more comfortable with picking and choosing styles and principles. It means a space that comprises heterogeneous elements- a mixture of textures, time periods, styles, trends and colours.

Eclecticism is the practice of deriving ideas, style or taste from a broad and diverse range of sources (noun). Eclecticism is a conceptual approach that does not hold rigidly to a single paradigm or set of assumptions, but instead draws upon multiple theories, styles or

ideas to gain complementary insights into a subject or applies different theories in particular cases. Eclecticism loosely translates to selective in Greek. It is a popular adjective in interior design parlance, meaning a décor that comprises heterogeneous elements- a mixture of textures, time periods, styles, trends and colours. There is however a fine line between a beautifully eclectic room and a merely chaotic room with no unifying themes and motifs.

Eclecticism began in France, England and Germany in the late 19th century. It allowed architects more artistic freedom than prior means. It was well-suited to experimentation and probably reached its peak in the great White Star and Cunard ocean liners of the early 20th century.

Due to the obvious lack of a set of rules, eclecticism can be tricky to accomplish with complete success. It was succeeded by modernism in the 1930's, but has made a resounding return in the recent years. It works best when the five principles of design are incorporated evenly. Those principles are: line, colour, texture, mass and form. Eclecticism is a kind of a symbiosis of several style directions. Close to each other historic styles were often mixed, for example, Classicism and Empire, Baroque and Modernism. Thus, there were new compositions created with the harmony of things in the interior which were not in a contraction with each other. This could be risky if done wrong.

Suddenly the mixture of different elements from different eras and trends in art became a single entity, parts of which were included into a wonderful harmony, so that it created a completely unique, colourful and individual style. Eclecticism looks like self-expression because it is impossible to select any particular style.

The main features of this style were contrast of colours and materials, sufficient amount of antiques and bold design decisions in planning and décor. Eclectic design is perfect for travelers who like to bring home different objects of other cultures and for collectors who place items of artists of different styles and eras in their homes.

The following are tips for doing eclectic décor well and successfully. Incorporating both rough and smooth textures adds interest to an interior space. There is also room to use one texture at least three times in different spots to maintain a cohesive look. Consider negative spaces because the eye needs a place to rest. Always consider the layout and placement and never forget to have a focal point. Let the utility of the space inform the décor. Have a colour scheme to act as a unifying factor. Always practice balance when making an eclectic style.

Eclecticism in relationship to the proposed case study is relevant in that the designer intends to use the philosophy to create a new and unique space. It also gives room for creative and a leeway in case of unforeseeable obstacles design wise. Eclecticism also provides space to combine the old and new trendy aspects hence make beautiful art in form of a functional space. The designer intends to incorporate African design with contemporary to create a refreshing new style and also embrace the vastness of African art and design. Most restaurants in the city are either minimalist or contemporary. In the rare cases of including African art it is through paintings and not a statement piece.

GUIDELINES TO ENSURE A BEAUTIFUL ECLECTIC MASTERPIECE

Create a neutral background. Anytime a designer starts a new project, it is helpful to think of the room as a blank canvas. The design elements in this style are often eye-catching, a neutral background is necessary to relieve the eye. A neutral background does not necessarily mean using neutral paints like white, grey, black and tan despite being viable options. Another more aesthetically appealing option is natural materials. Natural materials like wood, stones and eco-friendly fiber all visually register as neutral elements but they have enough built-in texture and variation to keep the background from feeling boring. These can be used in flooring, countertops and décor items.

Focus on balance and symmetry. No matter what style a designer is aiming for, symmetry and balance are key principles of design. The reason for the importance of balance and symmetry is simple; they help the brain simplify the design. Accordingly to *Gestalt psychology*- a school of thought focused on studying perceptions as the brain processes information- the brain instinctively boils design down to its simplest form. Repeating

identifiable patterns allows a person to process visual information about a space faster. As a result, balanced spaces are aesthetically appealing. A great example of how to achieve this is placing a furniture piece that serves a very specific and identifiable purpose. This will allow the eyes to relax and focus solely on the aesthetics of the space.

Coordinate with colour. Eclecticism is not the lack of coordination but making coordination a background note. To achieve a successfully designed space it is critical to maintain coordination. The designer will need to choose a colour that can be repeated throughout multiple areas in the space. It can be used in textiles, wall art and other accessories. If there is need for using multiple colours, the designer needs to stick to colour theory basics and choose one shade as the dominant while the rest serve as accents.

Mix textures. An eclectic style needs integration of both smooth and rough surfaces to help add more attention to an interior. This can be achieved by using pillows, shaggy throw rugs, rough wooden furniture, smooth finishes particularly on metals and irons. Use of vintage rugs or carpets is an excellent way of adding different textures into your spaces, when paired with furniture they can completely redefine a space. Every piece used should add to the creation of warmth, inviting and comfortable environment.

Add a statement piece- whether it is a furniture item or a work of art- is really where the design needs to shine. Designs should make it big and bold. This particular case does not need coordination. This is the piece that needs to pop. To use the statement piece correctly, make it the focal point of the space. Adjust the other items to subtly point to the signature item. An example of how to achieve this is if the designer aims to highlight a one of a kind mantle, the furniture in the room can be angled so that they point towards the fireplace or if the attention is to be drawn to a painting, it has to be large enough in scale to anchor the wall.

Consider the layout. Sometimes it is easy to be caught up in deciding which textures, colours or patterns that will bring out that eclectic look. The placement of furniture is essential. The arrangement of items and elements of a space might play a more

significant role than the fabrics or colours. How the furniture, rugs and other items are placed should evoke the feeling of comfort and warmth.

Attach meaning to various key items in a space. The things that can tell a story are the things that give life to the eclectic style. The designer should make use of items that have a personal meaning. A great example is an armchair that was purchased from a trip in South Africa, a picture from the clients' childhood framed and placed on the mantle or a vintage rug brought from Asia. To most an eclectic design style can feel conflicting. While the ability to break away from the traditional do's and do not's is more than enough to peak curiosity, at the same time the style can feel too unwieldy to attempt.



FIGURE 1; ECLECTIC SPACE (DAYDREAMDECOR.COM) FIGURE 2; ECLECTIC SPACE (WORDPRESS.COM)

PATRICIA URQOILA

She is an architect and designer. The Spanish designer brightens up the international architecture and design scene with her feminine designer products. She skillfully combines styles, patterns and materials. She stimulates curiosity. Her studio focuses on modern style with feminine accents and unexpected elements. Her works are featured in museums all over the world. The fjord foot stool is at the museum of modern art, New York.

Patricia is all about creating flexibility and adaptability. She enjoys focusing on design of interchangeable components without using modular features. Her strong belief in good

quality innovations results in pieces with a strong sense of function and practicality with a lot of freedom. Being interested in “behavior structures”, she likes to think in different scales at the same time.

Patricia’s work is about creating new ways of living. She’s not interested in old ways of living or traditional uses of conventional objects; she is concerned with new refined ways of living. Her goal is creative environments designed to encourage positive feelings and company. She loves to further reach this goal by creating design that is environmentally friendly and topping off almost everything with a fun colour or graphic print.

Looking at Patricia’s prolific body of work, the architect and industrial designer seems almost indefatigable. In the span of three decades, her diverse projects range across the fields of architecture, interiors to product design and hotels around the world; in Singapore. Each of these projects share one commonality: an irreverent yet humanistic approach that keeps the design maven at the top of her game. For the multi-hyphenate, design is about constant reinvention: “You have to be very curious, very active and try to break your own prejudices.”

She cites her architect training as being essential to her design ethos, with her studio working concurrently on architecture and design projects across the globe. “I think one profession feeds the other one and that’s a good thing,” she says. She designs pieces made to last, imbuing each with meaningful references to its origins. When Patricia likes a place, she calls it “easy”. Comfort, unpretentiousness, an intuitive eclecticism in the furnishings; these seem to be her cynosures. She likes places (and designs) that force your mind the unexpected and endless leaps. Her own manner- passionate, intense, her speech a glorious slurry of English, Spanish, French and Italian – is far from straightforward or simple to decipher and she is rarely happy sitting in place.

Flos premiered Urquiola’s musically inspired Flauta and Botanic Caules and Moroso presented the meticulously irregular Gogan sofa which lifts its design from Japanese stacking stones. All share her signature mark of elegant contemporary foundations accented with localized details.” The process of designing is always the same in some ways. You have your core elements and you have to defend your fundamental element

but you can leave it open to other aspects that are not crucial. The first one drives the project and there is no compromise. In the end, they go together. And in the end architecture is a prototype.”

As Urquiola sees it, architecture and design constantly need new ideas and approaches to process, sustainability and materials; the conversation can never stop if both are to stay relevant. Good design is also evolving concept, it has to adapt to society and understand its needs in a given moment. What typify all her designs are not only the unusual forms and materials but the unembarrassed use of colour, starkly distinguishing her woozy, sinuous shapes from familiar, monotonous palette of slate greys?



FIGURE 3; PATRICIA’S WORK (SOURCE: THE GLOBE AND MAIL), FIGURE 4; (SOURCE: HAWORTH.COM)



FIGURE5; PATRICIA'S INTERIORS (SOURCE: DESIGNBOOM.COM)



FIGURE 6; PATRICIA'S INTERIORS (SOURCE: DESIGNBUILDIDEAS.EU)

HICHLAM LAHLOU

Hicham at 45years is a Moroccan designer born in Rabat. His signature is recognized throughout African and Arab world. He has two decades of experience in design cities, urban furniture, tableware, plastic art, commercial architecture and graphic design.

Lahlou studied at Paul Cezanne middle school in Rabat and found a passion for drawing at a young age which later developed into a love for design. He later moved to Paris to study at Academie Charpentier in Paris, from which he graduated as an interior architect and designer

Lahlou has represented morocco and Africa with several masterpieces and design exhibitions abroad, chaired many competitions and received prestigious awards. One of his noteworthy awards from two years ago was the distinction of chevalier from the orders of arts and letters in France for his contributions to the field of design.

Lahlou's contemporary masterpieces find spaces in international museums such as Vitra design museum in Germany, the Guggenheim Bilbao in Spain and the Victoria and Albert museum in London. Lahlou has worked on big projects for prestigious brands, such as, French interior design DAUM, French Ecart international for furniture design and Belgian Aquamass design.

Lahlou works to position his country as new hub of design on the continent. His initiatives support the promotion of African design and have been strongly distinguished with the establishment of FEMADE (the Moroccan federation of design) in 2009, followed by Africa design award and Africa design days+ Morocco design week/days and awards.

He has inspired new energy for the emergence of avant-garde initiatives, supported companies and brought his vision and advice to projects that through design, have become examples for the continent, as well as internationally.

MAIN INSPIRATIONS

AFRICAN DESIGN

Africa is a large continent, stretching from countries such as Morocco and Egypt in the north all the way to Namibia, Mozambique and South Africa in the south. Each country has its own unique kind of interior design style; however the general style comprises of earthy and neutral tones that contain splashes of colour.

The African décor is mostly inspired by nature, as well as colourful fabrics, wild animals and various kinds of traditional wood carvings. It inspires many people as it gives a sense of adventure with of course the appeal of safari, Sahara deserts and beautiful wildlife all wrapped up into a space

Danela Conti Bryant from Decorex (her debut into interior design, more than two decades ago) Cape Town outlines some of the ways Africa is taking hold of interior design globally

AFRICAN WAX PRINTS

“This is such an African grassroots design which is making its way around the world, “explained Conti. “The international designers are using a more diluted version of the African wax prints, making them more popular in mainstream marketing. African design is now becoming more high-end.”

ORGANIC TEXTURES AND SHAPES

“We are seeing much more organic, curved structures in furniture which most likely has its roots in African craft,” she continued. “The vast natural resources and interpretation of the stunning African landscape is evident in many décor items”

NORTH AFRICA

North Africa is a region comprising the northern portion of the African continent. There is no singularly accepted scope of the region and it is sometimes defined as stretching from the Atlantic shores of Mauritania in the west, Egypt’s Suez Canal and the Red sea in the east. It however majorly comprises of modern countries of Morocco, Algeria, Tunisia and Libya.

The people of North Africa speak various dialects of Berber and Arabic and almost exclusively follow Islam. The Arabic and Berber groups of language are distantly related, both being members of the Afro- Asiatic family.

North African art is distinguished by a mystical quality drawing on the region’s symbols and signs that originate in pre- Islamic Berber motifs and a rich Islamic heritage introduced to the region by Arabs in the seventh century. From the Fezzan and Tassili petroglyphs in Libya and Algeria to the Neolithic paintings of Morocco, North African artists have a large reservoir of art that continues to influence their work.

Artists also make use of traditional signs and symbols as a metaphor for colonial policies that imposed foreign languages and cultures and the subsequent curtailment of liberties in the postcolonial era. Traditionally, symbols and signs are found in pottery, textiles, carved or painted wood, leather works, jewelry, amulets and tattoos. Kabyle women painted with their fingers on pottery and upon walls of their village homes; many of their shapes and symbols have marked resemblance to Neolithic pottery found in the region. These symbols are believed to carry healing qualities or to embody magical attributes that guard against misfortunes and the evil eye, these signs and symbols assume new forms and meaning in contemporary art.

MOROCCAN STYLE

Moroccan is a new trend in decorations that takes its roots from Moorish and Moroccan architecture; it has been made popular by Riads renovation in Marrakech. Moroccan architecture is beautiful, ranging from royal arches to modern buildings that lit up with neon lights at night. Some of the most well-known Moroccan decorations are lanterns. The lanterns can completely transform a room.

ISLAMIC ART

The principles and teachings of Islam as a way of life (a religious code), and a legal system were promulgated by Muhammad (ca. 570–632 A.D.), an Arab merchant from Mecca. These teachings were revealed to him over a period of many years beginning in 610 and were subsequently codified in the text known as the Qur'an. The word of God, as set out in the Qur'an and handed down, in the sayings of Muhammad (known as hadith, or Traditions), forms the core of the religion. The primary premise of the Islamic faith is monotheism, a renunciation of all deities except one, Allah, who alone is the creator, sustainer, and destroyer of life. Islam in Arabic means submission, "Here to the single entity of Allah". The recognition of Muhammad as Allah's last prophet, a prophet like Abraham, Moses, Jesus, and the others that preceded Muhammad, is also a key element of the belief.

Islamic art encompasses the visual arts produced from the 7th century onward by people who lived within the territory that was inhabited by or ruled by culturally Islamic populations. It is thus a very difficult art to define because it covers many lands and various peoples over some 1,400 years; it is not art specifically of a religion, or of a time, or of a place, or of a single medium like painting.

Neither the Qur'an, nor the Traditions contain specific mandates against figural representation in art. However, both sources take a firm stance against idolatry and the worship of images. These precepts were interpreted strictly by early Islamic religious leaders and exegetes as an injunction against the depiction of human or animal figures, although extant examples of architectural decoration, objects in all media, and illustrated manuscripts belie that stricture. Four types of ornamentation can be found in Islamic art:

calligraphy, figural forms (human and animal), vegetal motifs, and geometric patterns. These patterns, either singly or combined, adorn all types of surfaces, forming intricate and complex arrangements.

ISLAMIC GEOMETRIC PATTERNS

Islamic decorations, which tend to avoid figurative images, make frequent use of geometric patterns, which have developed over the centuries. The geometric design in Islamic art are often built on combinations of repeated squares and circles, which may be overlapped and interlaced, as can arabesques(with which they are often combined), to form intricate and complex patterns, including a wide variety of tessellations. They may constitute the entire collection, may form a framework for floral or calligraphic embellishments, or may retreat into the background around motifs. The complexity and variety of patterns used evolved from simple stars and lozenges in the ninth century through a variety of six to thirteenth point patterns by the thirteenth century and finally to include the fourteenth and sixteen point stars in the sixteenth century.

Geometric patterns occur in a variety of forms in Islamic art and architecture including, kilim carpets, Persian girih, Moroccan zellige tilework, murqarnas decorative vaulting, jail pierced stone screens, ceramics, leather, stained glass, woodwork and metal work. Interest in Islamic geometric patterns is increasing in the west, among craftsmen, artists, mathematicians and physicists who claim that the tilings at the Darb-e Imam shrine in Isfahan could generate quasi-periodic patterns like Penrose tilings.

FORMATION OF PATTERNS

Many Islamic designs are built on squares and circles, typically repeated, overlapped and inter-laced to form intricate and complex patterns. A recurring motif is the eight- pointed star, often seen in Islamic tilework; it is made of two squares, one rotated forty five degrees, with respect to the other. The fourth basic shape is the polygon, including pentagons and octagons. All these can be combined and reworked to form complicated patterns with a variety of symmetries including reflections and rotations. Such patterns can be seen as mathematical tessellations, which can extend indefinitely and thus suggest infinity. They are constructed on grids that require only a ruler and compass to draw.

Artist and educator Roman Verostko argues that such constructions are in effect algorithms, making Islamic geometric patterns forerunners of modern algorithmic art.

The circle symbolizes unity and diversity in nature and many Islamic patterns are drawn starting with a circle. For example, the decoration of the fifteenth century mosque in Yazd, Persia is based on a circle, divided into six by six circles drawn around it all touching at its two neighbour's centres to form a regular hexagon. On this basis is constructed a six pointed star surrounded by six smaller irregular hexagons to form a tessellating star pattern. This forms the basic design which is outlined in white on the wall of the mosque. That design, however, is overlaid with an intersecting tracery in blue around the tiles of other colours, forming an elaborate pattern that partially conceals the original and underlying design. A similar design forms the logo of the Mohammed Ali Research Center.

One of the early western students of Islamic patterns, Ernest Hanbury, defined a "geometrical arabesque" as a pattern formed "with the help of construction lines consisting of polygons in contact. He observed that many different combinations of polygons can be used as long as residual spaces between the polygons are reasonably symmetrical. For example, a grid of octagons in contact has squares (of the same side as octagons) as the residual spaces. Every octagon is the basis for an eight-point star, as seen in the Akbar's tomb, Sikandra (1605-1613). Hanbury considered the skill of the Arabian artists in discovering suitable combinations of polygons almost astounding. He records that if a star occurs in a corner, exactly one quarter of it will be shown; if along the edge, exactly one half of it.

The Topkapi Scroll, made in Timurid dynasty Iran in the late- fifteenth century or the beginning of the sixteenth century, contains a hundred and fourteen patterns including coloured designs for girih tilings and murqarnas quarter or semi domes.

The mathematical properties of the decorative tile and stucco patterns of the Alhambra palace in Granada, Spain have been extensively studied. Some authors have claimed dubious grounds to have found the most of all the seventeen wallpaper groups there.

Moroccan geometric woodwork from the fourteenth and nineteenth centuries uses only five wallpaper groups.

EARLY STAGE

The earliest geometrical forms in Islamic art were occasional isolated geometric shapes such as eight-pointed stars and lozenges containing squares. These dates from 836 in the great mosque of Kairouan, Tunisia and since then have spread all across the Islamic world.

THE MIDDLE STAGE

The next development, marking the middle stage of Islamic geometric pattern usage, was of six and eight point stars which appear in 879 at the Ibn Tulun mosque Cairo and then it became, widespread.

A wide variety of patterns were used from the eleventh century. Abstract six and eight-point shapes appear in the tower of Kharaqan at Qazvin, Persia in 1067 and the Al-Juyushi Mosque, Egypt in 1085 again became widespread from there, though six-point patterns are rare in Turkey.

In 1086, seven and ten-point girih patterns (with heptagons, five and six-point stars, triangles and irregular hexagons) appear in the Jameh mosque of Isfahan. Ten-point girih became widespread in the Islamic world, except in the Spanish Al- Andalus. Soon afterwards, sweeping nine, eleven and thirteen point girih patterns, are rarely used in the Barsian Mosque, also in Persia in 1098; these, like seven point geometrical patterns, are rarely used outside Persia and central Asia.

Finally marking the end of the middle stage eight and twelve point girih rosette patterns appear in Alaeddin mosque at Konya, Turkey in 1220 and in the Abbasid palace in Baghdad in 1230, going to become widespread across the Islamic world.

LATE STAGE

The beginning of the late stage is marked by the use of simple sixteen-point patterns at the Hasan Sadaqah mausoleum in Cairo 1321, and in the Alhambra in Spain in 1338-

1390. These patterns are rarely found outside these two regions. More elaborate geometric patterns are found in the Sultan Hasan Complex in Cairo in 1363, but rarely elsewhere. Finally, fourteen-point patterns appear in the Jama Masjid at Fatehpur Sikri in India in 1571-1596 but in few other places.

ART FORMS

Several art forms in different parts of the Islamic world make use of geometric patterns. These include ceramics, girih strap work; jali pierced stone screens, kilim rugs, leather, metalwork, murqarnas vaulting, shakaba stained glass, woodwork and zellige tiling.

CERAMICS

Ceramics lend themselves to circular motifs, whether radial or tangential. Bowls or plates can be decorated inside or out with radial stripes; these may be partly figurative, representing stylized leaves or flower petals, while circular bands can run around a bowl or jug. Patterns of these types were employed on Islamic ceramics from the Ayyubid period, thirteenth century. Radially symmetric flowers with say, six petals lend themselves to increasingly stylized geometric designs which can combine geometric simplicity with recognizably naturalistic motifs, brightly coloured glazes and a composition that ideally suits circular crockery. Potters often chose patterns suited to the shape of the vessel they were making. Thus an unglazed earthenware water flask from Aleppo in the shape of a vertical circle (with handles and neck above) is decorated with a ring of moulded braiding around an Arabic inscription with a small eight-petalled flower at the centre

GIRIH TILINGS AND WOODWORK

Girih are elaborate interlacing patterns formed of five standardized shapes. The style is used in Persian Islamic architecture and also in decorative woodwork. Girih designs are traditionally made in different media including cut brickwork, stucco, and mosaic faience tilework. In woodwork especially in the Safavid period, it could be applied either as lattice frame, left plain or inset with panels such as of coloured glass; mosaic panels used to decorate walls, ceilings, whether sacred or secular. In architecture, girih forms decorative interlaced strap work surfaces from the fifteenth century to the twentieth century. Most

designs are based on partially hidden geometric grid which provides a regular array of points; this is made into a pattern using two, three, four or six point fold rotational symmetries which can fill the plane. The visible pattern superimposed on the grid is also geometric, with six, eight, ten and twelve pointed stars which typically weave over and under each other. The visible pattern does not coincide with the underlying construction lines of the tiling.

JALI PIERCED STONE SCREENS

Jali are pierced stone screens with regularly repeating patterns. They are characteristic of Indo-Islamic architecture, for example in the Mughal dynasty buildings at Fatehpur Sikri and the Taj Mahal. The geometric designs combine polygons such as octagons and pentagons with other shapes such as five and eight pointed stars. The patterns emphasized symmetries and suggested infinity by repetition. Jali functioned as windows or room dividers, providing privacy but allowing in air and light. Jali forms a prominent element of architecture in India. The use of perforated walls has declined with modern building standards and the need for security. Modern, simplified jali walls for example are made with pre-moulded clay or cement blocks have been popularized by the architect Laurie Baker. Pierced windows in girih style are sometimes found elsewhere in the Islamic world, such as in windows of the Mosque of Ibn Tulun Cairo.

KILIM

A kilim is an Islamic flat woven carpet (without pile), whether for household use or a prayer mat. The pattern is made by winding the weft threads back over the warp threads when a colour boundary is reached. This technique leaves a gap or vertical slit, so Kilims are sometimes called slit-woven textiles. Kilims are often decorated with geometric patterns with a two or four fold mirror or rotational symmetries. Because weaving uses vertical and horizontal threads, curves are difficult to generate and patterns are accordingly formed mainly with straight edges. Kilim patterns are often characteristic of specific regions. Kilim motifs are often symbolic as well as decorative.

LEATHER

Islamic leather is often embossed with patterns similar to those already described. Leather books covers, starting with the Quran where figurative artwork was excluded were decorated with a combination of Kufic script, medallions and geometric patterns, typically bordered by geometric braiding.

METAL WORK

Metal artefacts share the same geometric designs that are used in other forms of Islamic art. However in the view of Hamilton Gibb, the emphasis differ: geometric patterns tend to be used for borders and if they are in the main decorative area they are most often used in combination with other motifs such as floral designs, arabesque, animal motifs or calligraphic script. Geometric designs in Islamic metal work can form a grid decorated with these other motifs or they can form the background of the pattern.

Even where metal objects do not seem to have geometric decoration still the designs, such as arabesques are often set in octagonal compartments or arranged in concentric bands around the object. Both closed designs (do not repeat) and open or repetitive patterns are used. Patterns such as interlaced six-pointed stars were especially popular from the twelfth century. Eva Baer notes that while this design was essentially simple, it was elaborated by the metalworkers into intricate patterns interlaced with arabesque, sometimes organized around further basic Islamic patterns, such as the hexagonal pattern of six overlapping circles.

MUQARNAS

Murqarnas are elaborately carved ceilings to semi-domes, often used in mosques. They are typically made of stucco (and thus do not have structural function), but can also be of wood, brick and stone. They are characteristic of Islamic architecture of the middle ages from Spain and morocco in the west to Persia in east. Architecturally they form multiple tiers of squinches, diminishing I size as they rise. They are often elaborately decorated.

STAINED GLASS

Geometrically patterned stained glass is used in a variety of settings in Islamic architecture. It is found in the surviving summer residence of the palace of the shaki khans, Azerbaijan, constructed in 1797. Patterns in the shabaka windows include six, eight and twelve point stars. The wood frame decorative windows are distinctive features of the palace's architecture. Shabaka are still constructed the traditional way in sheki. Traditions of stained glass set in wooded frames survive in workshops in Iran as well as Azerbaijan. Glazed windows set in stucco arranged in girih-like patterns are found both in turkey and Arab lands.

ZELLIGE

Zellige are glazed terracotta tiles set in plaster, forming colourful mosaic patterns including regular and semi-regular tessellations. The tradition is characteristic of morocco, but is also found in Moorish Spain. Zellige is used to decorate mosques, public buildings and wealthy private houses.

HISTORY

Zellige really began to flourish in Morocco during the 14th century, a time when the Islamic moors took the art of pottery glazing into Spain and Portugal where it inspired the famous painted Azulejo tiles. The cities of Fes and Meknes rose to prominence for their mosaics – a position they still hold – and the wealthy rushed to decorate their houses with zellige as a statement of affluence. This practice continues to this day with Moroccans commissioning as much zellige in their homes as they can afford, whether it's a small table top or entire rooms (Lemmen, 2013)

Some of the world's most amazing examples of zellige can be found in Morocco. Inspired by Roman mosaics, Moroccan artisans began creating their own versions of the tiled patterns as far back as the 11th century. They began simple, with earthy shades of brown and white, but over the centuries expanded their palette to include reds, yellows, greens, blues and now more modern colors like turquoise and rose. Their striking designs can be seen covering the water fountains, interior walls, mosques and tombs of Morocco where the craft is very much alive today. (Lemmen, 2013)

Kufi – also a name for a type of calligraphy style, the Kufi and with par with the calligraphic counterpart is the straight geometric lines pattern zellige. It utilizes straight lines to form a symmetrical pattern, using different colors to add interest and break the monotony.

The script called Kufi because it was thought to have been developed at Kūfah in Iraq—an early Islamic center of culture. Simple Kūfi was developed early in the Islamic era; the earliest surviving copies of the Qur’an - from the 8th to the 10th century—were copied in it.

Tawriq – tawriq is derived from the Arabic word “waraq” which means leaf hence it is a leaf type pattern of Zillij. It is quite distinguishable from the others for its use of curves that resembles leaves, and as always, arranged in a geometrical symmetrical fashion.

Tashjir – the word tashjir is derived from the Arabic word “shajara” which means “tree”. This type of Zillij Design is in a form of a tree. Not necessarily a whole tree but resembles a tree with interwoven stems and branches. It is different than the tile panels of Iznik and central Asia (in terms of tree and vegetal representation) where trees are literally representation of trees growing from a vase, whereas the Tashjir design the stems and branches intertwine in a symmetrical pattern.

Testir – This type of zellij revolves around a star in a Geometric interlace design Perhaps one of the most used and known styles of Zillij. The design revolves and blooms around a star while the lines interlace.

Process of making Zellige

To make a Zellij requires the skills and knowledge of a very specialized group of people. Usually it all starts with the mosaic artisan, or **zlayji**, being commissioned by a client who specifies where the mosaic is to be placed (Ypma, 2010). Once he has decided on a design, the zlayji must calculate the size and number of tiles he will require to cut the requisite pieces or ‘furmah’ in the various shapes he will need. Once he knows this, the zlayji orders the tiles from a kiln, where the potter will make the tiles using special clay which will allow the finished tile to be broken cleanly into the necessary pieces.

Making a compound that includes recycled lead from battery acid, the potter then mixes it with water and pigments to make the glaze. Traditional colors are sourced locally while more modern pigments are imported internationally. Once the tiles have been baked several times, they move on to the next craftsman, the cutter. With trained precision, the cutter uses his tools to score the tiles and then break them along the lines into the various ‘furmah’ needed for that particular mosaic. Then it’s onto the finisher who smoothest out the edges and makes sure the tiles will sit together correctly once the cement is applied. (Broug, 2013)

Finally, the finished tiles are bagged according to color and shipped off to location, where a layout artist waits to put it all together. First, he draws the design on the floor, using the zlayji’s pattern, and then lays the tiles, glazed side down, in the correct positions. Once the tiles are laid out, he has no way of checking the colors, so he has to make sure he gets it all right the first time (Broug, 2013). The arranged mosaic is then sprayed with powdered cement, covered with an adhesive backing and applied to the wall in one piece.

DESIGN PROCESS

The design process chosen by the researcher is from an interior design book known as Interior Design; A critical introduction by Clive Edwards (Edwards, 2011). It covers the design process from the formulation stage to the execution stage to the evaluation, reflection and feed back stage with various stages in between. The researcher chose this process due to the totality of it and the clarity of the tasks required at each stage.

The first stage is the formulation: inception and feasibility stage. This is the initial stage that establishes, considers and explores the outlined design brief or project. Key issues include identification of the elements and ways of understanding them. Then state the issues and the sub issues. To achieve this, the framing process allows the viewing of challenges from a number of different through structured aspects. The researcher creates an understanding with the human population affected by the space.

The second stage is the programming: research and scoping stage. Programming is the systematic research that explores the context of the design project and informs the decision-making process, which in turn defines the requirements to compete the project successfully. Programming strategies include the methods designed and used for

collecting, organizing, synthesizing and used for collecting, organizing, synthesizing and assessing the information needed to design the interiors of any type of building.

The third stage is to outline proposals-concepts surveys. It involves exploring different concepts. The initial stage of any conceptual process should be as value- and criticism free as possible to allow for the largest number of ideas to develop. The basic measuring of space is an important part of creating outline proposals with plans to draw up to scale.

The fourth stage involves representing through drawings, models, mood boards and computer models, defines and explores the problem and prepares potential solutions for the client consideration.

The fifth stage is the presenting stage which is the preparatory process before final agreement and contracting. It involves presentations such as portfolio presentations. The following steps depend on the client's direction. The client contracts specialists to implement the design. These steps are as follows.

The sixth stage involves moving and implementing. This stage involves carrying out the project, making purchases of the materials needed, hiring the needed staff, allocation of duties and signing the legal and financial terms of contract.

The seventh stage involves project supervision, site operation and completion. The managing is both mechanical and creative. Analysis of work and judgments are developed, based on experience or established principles, and should be both objective and subjective. Supervision of site operation, including construction, deliveries, installation and snagging, is an important role and becomes the front of any interior design business. The eighth stage involves evaluation, reflection, feedback and POE (Post-Occupancy Evaluation). Evaluation is an on-going process and after all is done; reflection is done by the specialists. The users of the space offer useful feedback to the specialists. The post-occupancy evaluation is also useful to researchers of similar designs in the future.

SUMMARY

The chapter looked at the design process in detail as well as the making of zellige tiles which is phenomenal and quite interesting. The researcher pointed out the sources of inspiration for the redesigning the space. There was detailed information about Moroccan art forms with inclusion of history and different materials used.

RESEARCH METHODOLOGY

INTRODUCTION

This chapter outlines the methods, tools and sources of research data, targeted time series data from which primary and secondary data was collected in order to attain the objectives of the study. The researcher intends to use the quantitative and qualitative methods of data collection to obtain information from the recipients or target audience that will allow addressing the four mandatory units-Interior Architecture, Landscaping, Furniture design and exhibition and display.

RESEARCH STRATEGY

The research held with respect to this dissertation was an applied one, but not new. Rather, numerous pieces of previous academic research exist regarding interior design, eclecticism philosophy and Moroccan culture. As such; the proposed research took the form of a new research but on an existing research subject.

Research method – Qualitative versus Quantitative techniques

In order to satisfy the objectives of the dissertation, a qualitative research was held. The main characteristic of qualitative research is that it is mostly appropriate for small samples, while its outcomes are not measurable and quantifiable (table one). Its basic advantage, which also constitutes its basic difference with quantitative research, is that it offers a complete description and analysis of a research subject, without limiting the scope of the research and the nature of participant's responses (Collis & Hussey, 2003)

However, the effectiveness of qualitative research is heavily based on the skills and abilities of researchers, while the outcomes may not be perceived as reliable, because

they mostly come from researcher’s personal judgments and interpretations. Because it is more appropriate for small samples, it is also risky for the results of qualitative research to be perceived as reflecting the opinions of a wider population (Bell, 2005).

Research approach

The research approach that was followed for the purposes of this research was the inductive one. According to this approach, researchers begin with specific observation, which are used to produce generalized theories and conclusions drawn from the research. The reasons for occupying the inductive approach was that it takes into account the context where research effort is active, while it is also most appropriate for small samples that produce qualitative data. However, the main weakness of the inductive approach is that it produces generalized theories and conclusions based only on a small number of observations, thereby the reliability of research results being under question (Denzin & Lincoln, 2005).

QUALITATIVE RESEARCH	QUANTITATIVE RESEARCH
The aim is a complete, detailed description.	The aim is to classify features, count them, and construct statistical models in an attempt to explain what is observed.
Researcher may only know roughly in advance what he/she is looking for.	Researcher knows clearly in advance what he/she is looking for.
Recommended during earlier phases of research projects.	Recommended during latter phases of research projects.
The design emerges as the study unfolds.	All aspects of the study are carefully designed before data is collected.

Researcher is the data gathering instrument.	Researcher uses tools, such as questionnaires or equipment to collect numerical data.
Data is in the form of words, pictures or objects.	Data is in the form of numbers and statistics.
Subjective – individuals interpretation of events is important ,e.g., uses participant observation, in-depth interviews etc.	Objective: seeks precise measurement & analysis of target concepts, e.g., uses surveys, questionnaires etc.
Qualitative data is more 'rich', time consuming, and less able to be generalized.	Quantitative data is more efficient, able to test hypotheses, but may miss contextual detail.
Researcher tends to become subjectively immersed in the subject matter.	Researcher tends to remain objectively separated from the subject matter.

Table 1. Adapted from: Miles & Huberman (1994, p. 40). Qualitative Data Analysis, available at <http://wilderdom.com/research/QualitativeVersusQuantitativeResearch.html>

Qualitative mode	Quantitative mode
<p>Assumptions</p> <ul style="list-style-type: none"> • Reality is socially constructed 	<p>Assumptions</p> <ul style="list-style-type: none"> • Social facts have an objective

<ul style="list-style-type: none"> • Primacy of subject matter • Variables are complex, interwoven, and difficult to measure • Emic (insider's point of view) 	<p>reality</p> <ul style="list-style-type: none"> • Primacy of method • Variables can be identified and relationships measured • Etic (outsider's point of view)
<p>Purpose</p> <ul style="list-style-type: none"> • Contextualization • Interpretation • Understanding perspectives 	<p>Purpose</p> <ul style="list-style-type: none"> • Generalizability • Prediction • Causal explanations
<ul style="list-style-type: none"> • Ends with hypotheses and grounded theory • Emergence and portrayal • Researcher as instrument • Naturalistic Inductive • Searches for patterns • Seeks pluralism, complexity • Makes minor use of numerical indices • Descriptive write-up 	<p>Approach</p> <ul style="list-style-type: none"> • Begins with hypotheses and theories • Manipulation and control • Uses formal instruments • Experimentation • Deductive Component analysis • Seeks consensus, the norm • Reduces data to numerical indices • Abstract language in write-up
<p>Researcher Role</p> <ul style="list-style-type: none"> • Detachment and impartiality • Objective portrayal 	<p>Researcher Role</p> <ul style="list-style-type: none"> • Personal involvement and partiality • Empathic understanding

Table 2 Predispositions of quantitative and qualitative modes of inquiry (Adapted from Glesne & Peshkin, 1992)

Data collection method and tools

For the purposes of this research, in depth interviews were used. In depth interviews are personal and unstructured interviews, whose aim is to identify participant's emotions, feelings, and opinions regarding a particular research subject. The main advantage of personal interviews is that they involve personal and direct contact between interviewers and interviewees, as well as eliminate non-response rates, but interviewers need to have developed the necessary skills to successfully carry an interview (Fisher, 2005, Wilson, 2003). What is more, unstructured interviews offer flexibility in terms of the flow of the interview, thereby leaving room for the generation of conclusions that were not initially meant to be derived regarding a research subject. However, there is the risk that the interview may deviate from the prespecified research aims and objectives (Gill & Johnson, 2002).

As far as data collection tools were concerned, the conduction of the research involved the use of semi-structured questionnaire, which was used as an interview guide for the researcher. Some certain questions were prepared, so as for the researcher to guide the interview towards the satisfaction of research objectives, but additional questions were made encountered during the interviews.

Sample selection

The method of purposive sampling was used to develop the sample of the research under discussion. According to this method, which belongs to the category of non-probability sampling techniques, sample members are selected on the basis of their knowledge, relationships and expertise regarding a research subject (Freedman et al., 2007)

Data analysis

Content analysis was used to analyze the data which was gathered from personal interviews. According to Moore & McCabe (2005), this is the type of research whereby data gathered is categorized in themes and sub-themes, so as to be able to be comparable. A main advantage of content analysis is that it helps in data collected being reduced and simplified, while at the same time producing results that may then measure using quantitative techniques. Moreover, content analysis gives the ability to researchers to

structure the qualitative data collected in a way that satisfies the accomplishment of research objectives. However, human error is highly involved in content analysis, since there is the risk for researchers to misinterpret the data gathered, thereby generating false and unreliable conclusions (Krippendorff & Bock, 2008).

SITE ANALYSIS, PRESENTATION AND INTERPRETATION OF FINDINGS

Introduction

This chapter comprises of the analysis, presentation and interpretation of the collected data. It starts with the Historical background of the site, Geographical analysis of the site and then the climatic conditions of the site including topography and drainage. The researcher used graphical methods to represent the climate and temperature of the site. Existing conditions of the spaces at the site will also be discussed in detail using the four main areas of interior design as guidelines, namely Interior Architecture, Landscaping Design, Furniture Design and Exhibition and Display. This will be done through the use of photographs taken of the site and short narratives. Quantitative analysis and presentation of the responses from the interviews and observation will also be discussed by employing narration and pie charts.

Qualitative Analysis

This section focuses on information regarding the site profile such as the location and social and geographical factors affecting the site. In addition, a detailed description of the interior and exterior spaces, furniture, exhibition and the landscape at the site in that order will be provided

Geographical Location

Eastleigh is situated at latitude of negative 1.270563 and longitude of 36.846843. the sunrises at 0632 hours and sets at 1837 hours. The moon rises at 2058 hours and sets at 0533 hours all East African time

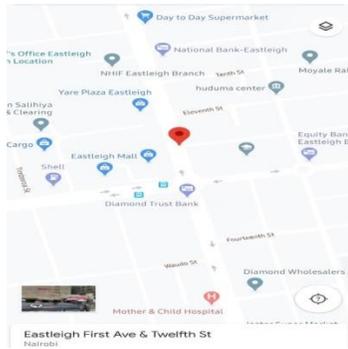


FIGURE 7; GEOGRAPHIC LOCATION (SOURCE: GOOGLE MAPS)

Climatic Conditions

In Nairobi, the summers are short, warm, and overcast and the winters are short, cool, dry, and partly cloudy. Over the course of the year, the temperature typically varies from 54°F to 81°F and is rarely below 50°F or above 84°F. July is the driest month in Nairobi registering 14 mm of rainfall annually. With an annual rainfall average of 191 mm, the most precipitation falls in April. The predominant average hourly wind direction in Nairobi is from the east throughout the year.

Temperature

The warm season lasts for 2.1 months, from January 24 to March 27, with an average daily high temperature above 79°F as shown in the figure below. The hottest day of the year is February 26, with an average high of 81°F and low of 60°F.

The cool season lasts for 2.6 months, from June 5 to August 25, with an average daily high temperature below 73°F. The coldest day of the year is July 14, with an average low of 54°F and high of 71°F.

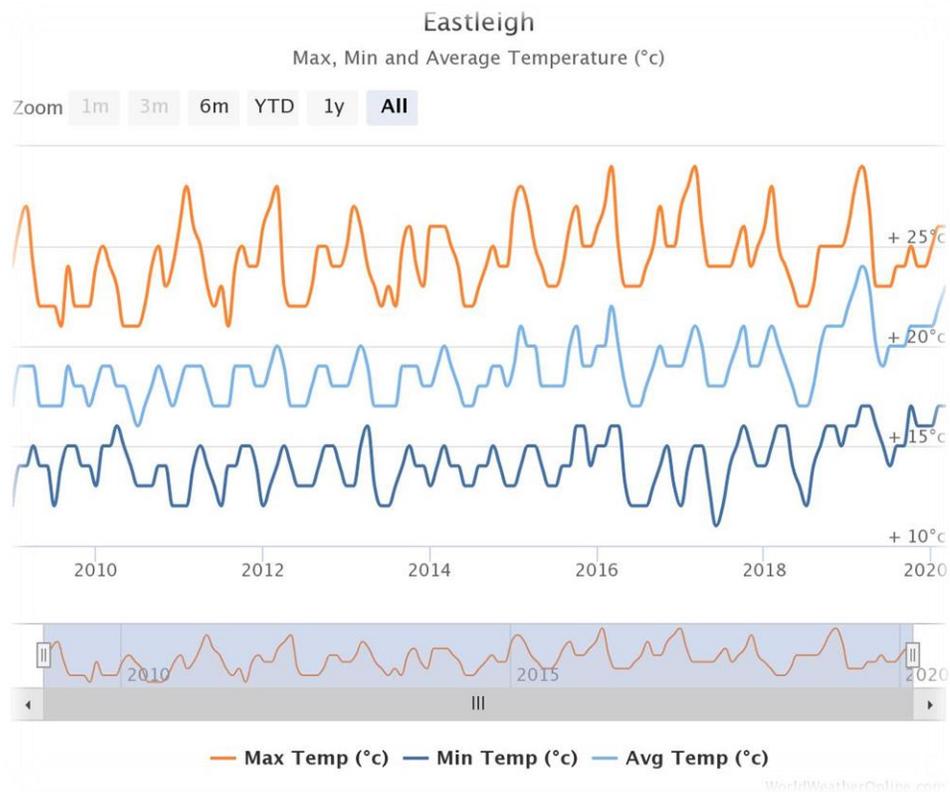


FIGURE 7; AVERAGE TEMPERATURE (SOURCE: WORLDWEATHERONLINE.COM)

RAINFALL

Nairobi racks up an average of 925mm of rainfall per year or 77.1mm per month. On average there are 89 days per year with more than 0.1mm of rainfall with a quantity of rain, sleet or snow. The driest month is in July when an average of 19mm of rainfall occurs. The wettest month is April which receives an average of 209mm of rainfall.

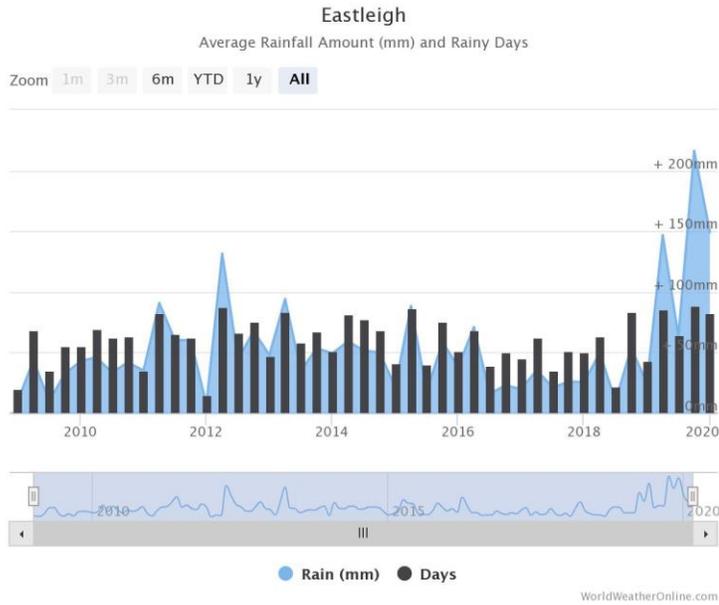


FIGURE 8; AVERAGE RAINFALL (SOURCE: WORLDWEATHERONLINE.COM)

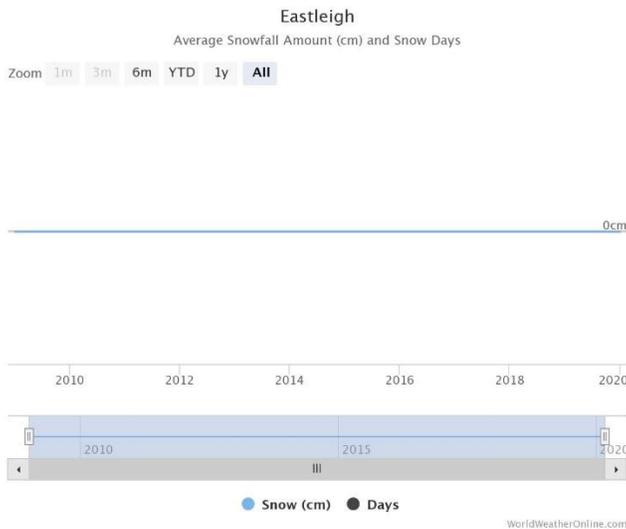


FIGURE 9; AVERAGE SNOW (SOURCE: WORLDWEATHERONLINE.COM)

Wind speed

Wind speed in Nairobi Kenya. On average the most wind is seen in January and the least wind is seen in July.

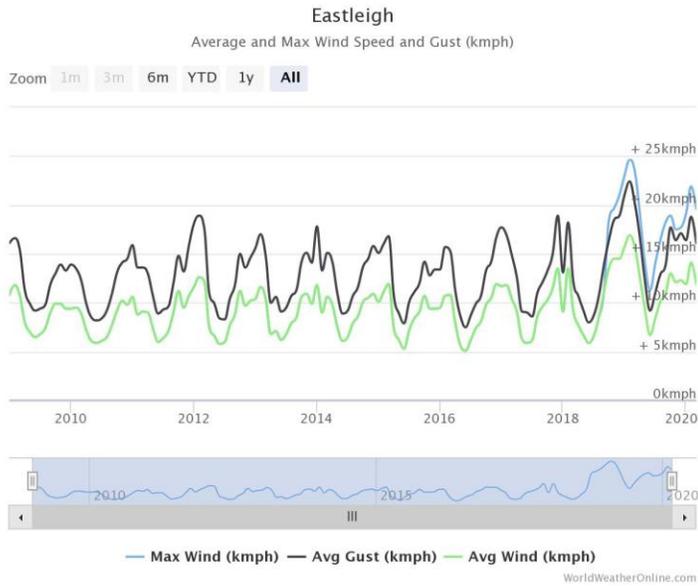


FIGURE 10; AVERAGE WIND SPEED (SOURCE: WORLWEATHERONLINE.COM)

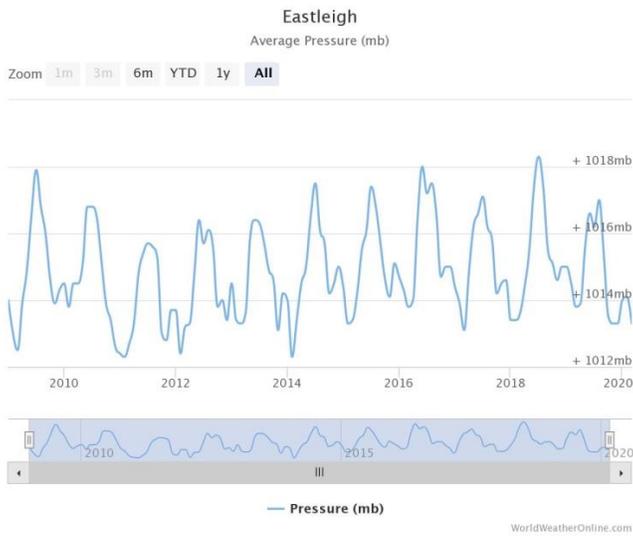


Figure 11; Average wind pressure (source: worldweatheronline.com)

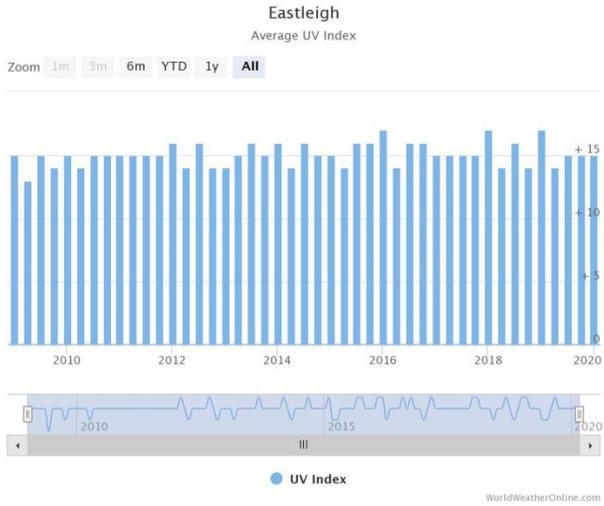


Figure 12; Average UV index (source: worldweatheronline.com)



Figure 13; Average sunlight (sunlight; worldweatheronline.com)

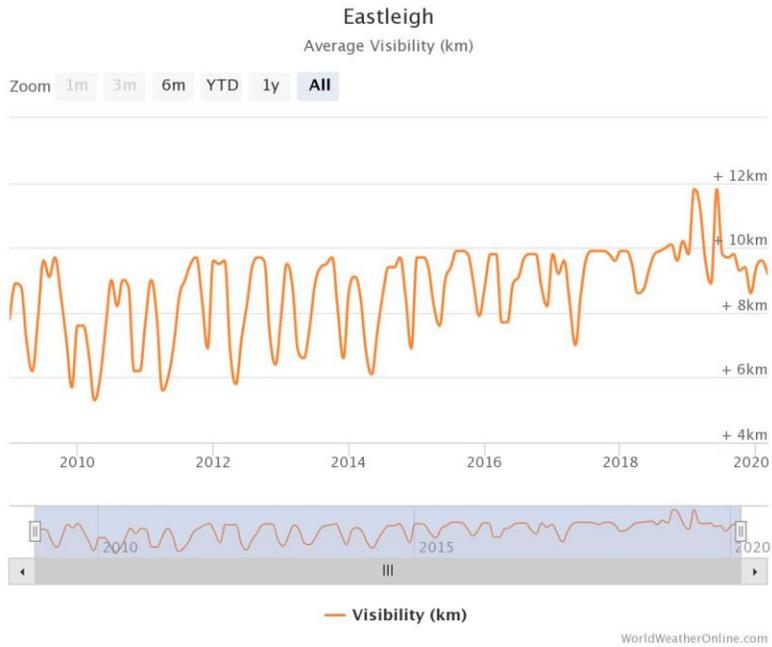


FIGURE 14; AVERAGE VISIBILITY (SOURCE: WORLDWEATHERONLINE.COM)

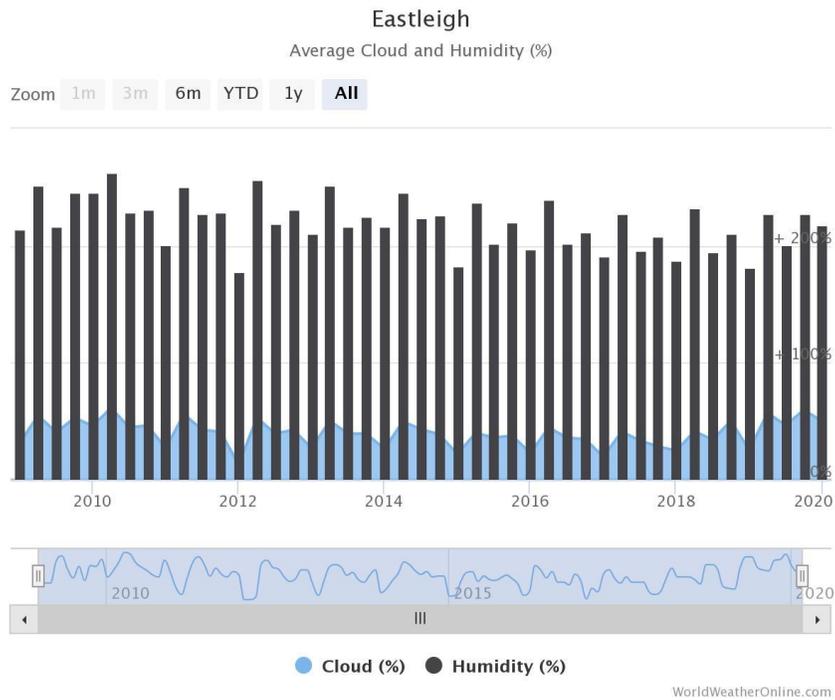


FIGURE 15; AVERAGE HUMIDITY (SOURCE: WORLDWEATHERONLINE.COM)

Topography

The space is on a flat area at 1788m above sea level

Access and circulation

The space has direct access to a main road which ensures a lot of walk in customers despite the regulars.

Soil

The soil on the site is loam soil as is most of the area. The soil is very fertile and can allow for growth of plantation on the site without introduction of specific requirements.

Drainage and Hydrology

The site has regular drainage except for the manmade sewage systems that easily block due to the increased level of waste products all around. One of the main problems is waste disposal despite the strict measures put by city council and the steady cleaning done by the workers

Interior architecture

Gar gaar restaurant is a new setup and is fairly small as is usual in the Eastleigh area.



FIGURE 16 AND 17; SITE PICTURE (SOURCE: PERSONAL CAMERA)

Plan analysis

The current floor plan allows human traffic without much disruption.

Color scheme and flooring

The restaurant has a colour scheme of orange, brown, black and white. The colour scheme is seen through the wall paints and furniture colours.

Lighting, aeration and ceiling.

The current plan has only two windows situated around the door. The lighting is artificial without much use of natural light.



FIGURE 18; SITE PICTURES (SOURCE: CAMERA)

Windows, doors and Circulation space

The windows and door are all along the width of the establishment as seen in the previous image.

Exhibition and display



FIGURE19; EXHIBITION (SOURCE: CAMERA)

The existing exhibition is menu lighting which is popular and trendy and a green refrigerator that is underwhelming

Landscape

The establishment has minimal landscape design. There are a few potted plants at the entrance of the space.

QUANTITAVE ANALYSIS

The researcher concentrates on specific data to represent. After asking the managers and select customers about the interior of the space being memorable or holding any specific intrigue. Most decidedly said the space was functional and sometimes that is all it needs to be. Some said the space could use some organization in terms of its arrangement and colour coordination.

After collecting data through face to face semi-structure interviews the researcher found out that Out of the 20 respondents 15 of the entire sample agreed with the proposition of the use of Islamic geometry as an inspiration in the redesigning of the school, 2 were undecided and 3 are unaffected by either designs. The Managers strongly agreed to the proposition of Islamic geometry since they believed that it gives the site identity in terms of the interior and exterior spaces. 2 cleaners were undecided with the proposition of Islamic geometry in the redesigning of the site as shown in the chart below.

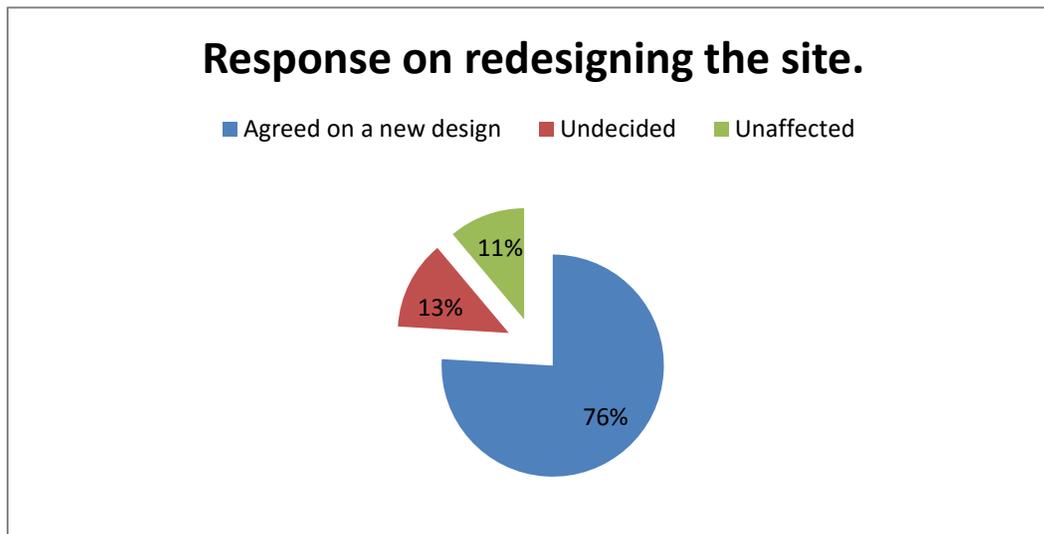


Table 3; pie chart for responses

SUMMARY OF FINDINGS, CONCLUSIONS AND RECCOMENDATIONS

Introduction

The chapter will aim to discuss and make a summary the findings presented in the previous chapter. Thereafter, in relation to the research questions, the researcher summarized the findings so as to develop an appropriate conclusion and recommendations, the researcher will seek to make conclusions and suggest appropriate recommendations pertaining to Moroccan art and eclecticism to make a viable interior design.

All data is based on the fact finding done by the researcher through observation and participatory semi-structured interviews to the sample population of Eastleigh 12th street.

The recommendations will touch on the interiors of the restaurant and the landscaping of the whole space as well as the furniture and exhibition and display techniques suited for Gar gaar restaurant. All the recommendations are based on the facts established by the researcher from data methodology in chapter three of the research. Chapter five being the last chapter of the research it gives a conclusive summary of the research followed by the

researcher's suggestions for the further study and research for the use of interior designers in designing restaurants in Nairobi, Kenya.

Summary of Data Analysis/ Findings

The case study site, Gaar gar restaurant is a fairly popular establishment for first avenue area Muslim residents. From the researcher's participant observation and qualitative analysis of the site's existing spaces and surrounding conditions, it can be concluded that little regard has been put into the aesthetic improvement of the interior spaces and no focus has been put towards the roof and its outdoor area. There is no evidence of the incorporation of any Moroccan or Islamic geometric patterns in the interior and exterior spaces of the site. This is clearly observed from the restaurant's physical environment, interior spaces, color scheme, furniture designs and the entire landscape. From the interview guide whereby, the researcher had asked for the user's suggestions on the specific areas of the hotel that are supposed to be renovated, all the four areas of the hotel's physical environment; landscape, interior architecture, exhibition spaces and the furniture were suggested for renovations.

The landscaping at the site is plain without a lot of vegetation but more could be done in terms of systematic alignment of vegetation types, well-defined flower beds, outdoor seating and lighting and a well-defined entrance and driveway inclusive of a gate. Exhibition and display were mainly confined interpretive types of exhibitions with minimal art exhibitions displayed both indoors and outdoors. The furniture in use was practical and borrowed from existing trendy ideas as Eastleigh is a hub. The lighting ideas in use were very current which shows the constant renovations the restaurant observes.

Recommendations

The following solutions were therefore recommended by the researcher for implementation with regards to rectification of some of the issues observed in regards to the furniture, exhibition, landscape and interior design. Most of the solutions are inspired by Moroccan architecture style and zellige tiles not excluding the use of vibrant deep colours.

Interior Architecture Recommendations and suggestions

Interior architecture encompasses wall, floor, lighting and ceiling treatments as well as doors and windows and any other opening confined within an indoor space. These four areas under interior architecture will be discussed below giving various achievable and appropriate recommendations.

Walls

The existing walls are tiled halfway through vertically and the upper part is concrete painted orange, white and red with oil based paints. Oil based paints consist of natural oil, such as linseed, synthetic or alkyd oil. The use of oil paint generally produces a smooth texture. It can be sprayed or applied with a brush and usually leads to a rather glossy finish. It can be wiped off or removed using mineral spirits such as turpentine.

OIL BASED PAINTS	
PROS	CONS
<ul style="list-style-type: none">▪ Easy to with▪ Covers many types of surfaces very well▪ Requires only one or a few coats of paint▪ Available with different grades of sheen▪ Hard and durable finish	<ul style="list-style-type: none">▪ Often more expensive▪ Special brushes, rollers or paint sprayers are needed▪ Special paint remover or stripper required to remove enamel▪ Health effects if improperly exposed to certain paint removers▪ Fresh oil paint tends to have an odour▪ Longer drying time▪ Colour can fade or turn yellow over time.

Table 4; comparison table for cons and pros of oil-based paint

The researcher has a few recommendations that will be more durable and aesthetically appealing to the customers.

WOOD

Types of wood

SOFTWOODS

They come from coniferous trees such as cedar, fir and pine and they tend to be somewhat yellow or reddish. Because most coniferous trees grow fast and straight, they are generally less expensive than hardwoods. It is also sustainable since they are farms dedicated to ensure supply of wood hence no contribution to deforestation

PINE

Commercial pines are grown in plantations for timber that is denser, more resinous and therefore more durable than spruce. Pine is easy to work with and because most varieties are relatively soft, it lends itself to carving. Pine is commonly used in furniture as it is easy to shape and stain. Pine generally takes stain well as long as it is sealed first. It is used in high value carpentry items such as window frames, paneling, floors and roofing. The resin in some species is an important source of turpentine.

CEDAR

The most common type of cedar is the western red variety. Western red cedar, as its name implies, has a reddish colour to it. This type of wood is relatively soft, has a straight grain and one of the most aromatic woods... hence, a cedar chest drawer and wardrobe nuggets and coat hangers make clothes smell nice and deters insects such as moths. Western Red cedar is mostly used for outdoor projects such as furniture, decks and a building exteriors because it can handle moist environments without rotting.

FIR

Often referred to as Douglas Fir, this wood has a straight, interesting and pronounced grain and has a reddish brown tint to it. Fir is most often used for building; as it is inexpensive and can be used for some furniture-making as well. It does not take stain

well, so it is best to use it only when in the raw or you intend to paint the finished product. Fir is moderately strong and hard for softwood, rating 4 on a scale of 1 to 4.

HARDWOODS

Most woodworkers and wood turners love to work with hardwoods. The variety of colours, textures and grain patterns makes for some beautiful and interesting looking furniture. The downside to hardwoods is their price. Some of the more exotic species can be too expensive to use for anything more than accent such as in highly patterned marquetry.

OAK

There are over 200 species of oak in commercial cultivation. English oak is known to be the best quality and has been used for centuries. Oak is strong (hardness of about 4 on a scale of 1 to 5) and easier to work with when green. It is also resistant to insect and fungal attack because of its high tannin content. The grain has a beautiful “ray flake” pattern to it.

Oak planking was common a Viking long ships in the 9th and 10th centuries. The wood was hewn from green logs, by axe and wedge, to produce planks. Boards of oak have been prized since the Middle Ages for use in interior paneling of prestigious buildings such as the debating chamber of the House of Commons in London. Oak was used in Europe for the construction of ships, especially naval vessels and docks. Today oak wood is still commonly used for furniture making and flooring, timber frame buildings and for veneer production.

ASH

Ash is a hardwood and it is hard, dense, tough and very strong but elastic, extensively used for tool handles and baseball bats and other uses demanding high strength and resilience. Ash has great finishing qualities. It also has good machining qualities and is quite easy to use with nails, screws and glue. There is little demand and therefore less expensive as other hardwoods.

It is also often used as material for electric guitar bodies. Some fender Stratocasters and telecasters are made of ash. It is also used for making drum shells. Early cars had frames which were intended to flex as part of the suspension system in order to simplify construction. Morgan cars still have frames made from ash.

BEECH

Beech is a utility timber that is tough but dimensionally unstable. It weighs about 720kg per cubic metre and is widely used for furniture and carcass construction, flooring and engineering purposes, in plywood and in household items like plates but rarely as a decorative wood. It is excellent firewood easily split and burning for many hours with bright but calm flames. Beech is also used to smoke hams, various sausages and some cheese.

ELM

Elm is valued for its interlocking grain and consequent resistance to splitting, with significant uses in wagon wheel hubs, chair seats and coffins. Often long, straight. Trunks were favoured as a source of timber for keels in ship construction. Elm was also used longbows if yew was unavailable. It was also prized by bowyers in the Middle Ages.

MAHOGANY

One of the great furniture woods, mahoganies (also called Honduran mahogany) have reddish-brown to deep-red tint, a straight grain, medium texture and a hardness of around 2 on a scale of 1 to 5. It takes stain very well and looks great with just a coat (or 10) of oil.

TEAK

It is sometimes known as “Burmese teak”. Teak wood has a leather-like smell when it is freshly milled. It is particularly valued for its durability and water resistance and is used for boat building, exterior construction, veneer, furniture, carving, turnings and other wood projects. Teak’s natural oils make the timber termite and pest resistant. Teak is durable even when not treated with oil and varnish. Timber cut from old teak trees was once believed to be more durable and harder than plantation grown teak. Studies have

shown that plantation teak performs on par with old-growth teak in erosion rate, dimensional stability, warping and surface checking, but is more susceptible to colour change from UV exposure. It rates a 3 on a scale of 1 to 5, hardness.

WALNUT

With a hardness of about 4 on a scale of 1 to 5, walnut is a rich brown wood that is easy to work with. Unfortunately, walnut is somewhat expensive and finding large boards for big projects is getting difficult. In spite of this, walnut is still a great wood to work with and lends itself nicely for use as accents and inlays to dress up a project with wonderful grain patterns especially burr walnut.

INSULATED CONCRETE FORM

For decades, concrete walls and foundations were made the same way. Plywood or plain boards are built into forms that contain steel reinforcing bars (rebar) and into which wet concrete is poured. When the concrete hardens, the forms are ripped off to reveal the bare concrete wall or foundation.

Recently, wood forms are giving way to polystyrene insulated concrete forms made from either polystyrene or other materials such as woodcrete (a recycled cement bonded wood fiber material), which fit together like giant Lego pieces, stacking to create a very efficient foundation envelope for an entire house. When concrete cures inside the ICFs the forms stay in place to provide insulation inside out. Walls are generally between 4 inches and 12 inches thick, depending on the location and climate. These interlock, side to side and top to bottom, leaving no gaps. As the panels go up, vertical rebar is installed at close, regular intervals and secured in place. Finally, concrete is slowly poured down through the structure and all voids carefully filled.

Cement bonded wood fiber insulated concrete forms(ICFs) were originally, commercially produced by a Swiss company, Durisol in 1938. The product became popular because it was cost effective and could be used in construction by mostly unskilled labour. By 1959 it was reported that Durisol was able to cut the traditional labour costs by 20 to 30 percent.

ICFs are used internationally because it provides superior waterproofing, can be installed in any climate, is lighter to install and reduces labour costs. The steel-reinforced concrete core protects the home against fire, hurricanes and earthquakes. It also reduces noise infiltration and energy efficient.

BAMBOO

Bamboo may resemble wood in many ways, but it is a grass. That means it regenerates much faster than timber, which can take decades. Allowing younger shoots to receive more light by harvesting the taller and thicker shoots improves its growing conditions. This makes bamboo an amazing eco-friendly option. Bamboo reeds are applied to a paper backing with an adhesive to turn it into a simple wall covering. There will be subtle variation in color and texture that easily blends with the whole interior space.

FLOORING

The term flooring refers to the lower enclosing surface of spaces within buildings. This may be part of floor structure, such as the upper surface of a concrete slab or floor boards, but typically it is a permanent covering laid over the floor.

TILES (porcelain or ceramic)

There are many options in terms of colour, texture, shape and finishes of tiles. Due to their hardness they are difficult to dent or scratch and are also suited to wet environments. However they are difficult to install and can break if there is lack of support beneath the tiles.

TILES (natural stone)

These are generally more expensive than porcelain but are more aesthetically appealing. They need to be properly sealed when installed, a process that will need repeating occasionally to keep the tiles protected.

LAMINATE

Laminate flooring is a compressed fireboard plank covered with an image of a material such as timber, stone, tiles and so on that is then given a protective coating. Good quality

laminates are durable and may have a 20-year warranty. They require minimal maintenance and may be installed with under-floor heating.

TIMBER

Given that each piece is different, the unique aesthetic of timber is one of the main appeals for its use as flooring. It can also be very durable although it may scratch and is prone to movement. Timber being hygroscopic (sponge-like), it can be unsuitable for use in rooms that may be exposed to humidity or moisture, although treatment of the timber can make it resistant to moisture. There are several options floor finishing timber such as wax, oil or lacquer.

CEILING

The ceiling of a room makes an important style statement. The ceiling affects the look and feel of a room as well as the comfort and safety, as many ceilings are designed to control sound or be fire resistant. There are many variations on the different types of materials that are appropriate for a ceiling and some materials are more common or popular than others.

WOOD

Wooden boards are commonly used for the general structure of a home and are thus typically a component of the ceiling. However, decorative planks just like a wooden floor or may have strategically placed planks to add interest to an otherwise plain ceiling. Many types of decorative molding are also made from wood.

TILES

Ceiling tiles are different from floor or wall tiles in that weight is an issue when decorating a ceiling. Ceiling tiles are light weight and made from a variety of materials such as plastic, metal, fiberglass, mineral fiber, wood fiber, vinyl-coated gypsum and even cork. Most tiles are designed for installation in a suspended ceiling system, though some are designed to stick to a ceiling and are ideal for decorating a plain ceiling that is in good condition. Along with their decorative purpose, ceiling tiles are often designed to control noise levels in a room.

LIGHTING

Lighting is a key element behind a restaurant's ambience. Nowadays, restaurants incorporate modern lighting to their premises to create the perfect atmosphere for the diners and set the overall personality of the place. From architectural friendly, LED lights to mood lighting.

ACCENT LIGHTING

Accent lighting will bring out the architectural highlights of your restaurant. This LED lighting technique is being used to highlight the wall fixtures, above mirrors and bathrooms, making the restaurant look practical as well as phenomenal. Accent lighting is currently popular lighting concept.

FAN LIGHTING

The most unique feature of LED lighting is its architectural friendliness. LED's ability to incorporate with the modern architecture makes it the most popular lighting solution.

NATURAL LIGHTING

Nothing can surpass natural lighting but it is not always possible for the sun to be always there. Natural light plays on human comfort, health and mood but it varies depending on where the light is. In architecture, it is integral part of the design of a building, it brings added value. There are different types of natural light entering a building, here are a few;

- Diffuse and uniform light(from larger and regular openings, for example: striped windows around a room)
- Direct light(from direct sunlight at the desired location)
- Overhead light(coming from the ceiling like a skylight)
- Reflected light(coming from any surface and redirected in space)

Whether the building is small or large, it is important to analyze all elements of its geographic location. The light entering the building varies according to several factors:

- The location and orientation of the building relative to the sun
- The location and size of windows and openings.

- Seasons.
- The clearance around the building.

All these factors are interrelated and allow, among other things, better efficiency.

LANDSCAPE RECOMMENDATIONS

SOFTSCAPE

Softscape comprises of animate, horticultural elements of landscaping. Softscape has more benefits than just aesthetic appeal. It is cheaper than hardscaping and it reduces pollution and keeps the overall ecology balanced.

FLOWERS

LILIES

With large showy blooms, lilies are perennial flowers that will return year after year and require minimal care, provided that they are planted in the right place. Lilies have six plain or strikingly marked petals and are trumpet-shaped, sitting atop a tall erect stem with narrow, long, lance-shaped leaves. They come in many beautiful colours including, pink, gold, red, orange and white.



FIGURE 20; LILIES (SOURCE: GOOGLE)

Wedelia

The wedelia is referred to as the rabbit's paws, the trailing daisy or the yellow dots. Yet in other quarters it is known as the creeping ox-eye. Its dense ground-hugging foliage at

times chokes out weeds as its yellow daisies, which it bears all year round, remain a sight to behold.



Figure 21; creeping ox-eye (source: Pinterest)

PLANTS AND SHRUBS

IMPATIENS

Impatiens is perennial plant with no tolerance of frost. Morning sun with afternoon shade is preferable for this species, which wilt in full sunlight even in consistently moist soil. Impatiens tolerate full shade



FIGURE 22; IMPATIENS (SOURCE: PINTEREST, 2019)

CROTON

It is a perennial evergreen shrub native to India and Malaysia. The name “croton” comes from Greek word for tick, as the croton seed is resembles a tick in shape. The tropical

plant has thick, leathery leaves of varying colours, shapes and size. As it ages, the plant's colour may darken to nearly black.



FIGURE 23; CROTON (GARDENSLOVER.COM)

VARIEGATED DURANTAS HEDGE PLANT

They are small flowering shrub and a fast growing tropical plants also known as plastic Duranta. They form excellent hedges with impressive blooms. Variegated Durantas grow up to 4-6 metres tall.



FIGURE 24; DURANTAS (TORONURSERY.COM)

Blue Fescue

This hardy grass, which requires less maintenance and remains active throughout the year, is a good choice for rooftop gardens. Its growing length is 10 inches.



Figure 25;blue fescue (source: myroof.com, 2019)

HARD LANDSCAPE

PAVEMENT

Concrete: Concrete is the most preferred material because it's affordable, easy to install and maintain. You can easily apply different colors, patterns and textures to match the theme of your project. On the other hand, there are other types of concrete paving materials that you can use. These are already pre-casted, meaning these were already designed in a variety of shapes, sizes, colors, patterns and textures.



Figure 26; concrete pathways (landscapeorderings.co.nz)

Limestone: Reflecting heat is one of the good characteristics of limestone. We recommend using limestone for those areas with hot climates. It's white to off-white color is perfect for warm climate conditions, as it can reflect heat instead. It's best to use limestone for shaded areas in your patio; it can lighten up the area with its natural color.

Tiles: porcelain tile is a particularly dense and strong form of ceramic and so most porcelain tiles are rated for flooring use. The best choices will be textured, matt tiles without highly glossy surface that will be slippery when wet.



Figure 27; Moroccan outdoor tiling(Pinterest)

OUTDOOR LIGHTING

String lighting: they are an easy and fairly inexpensive way to add light backyard, gardens or outdoors.

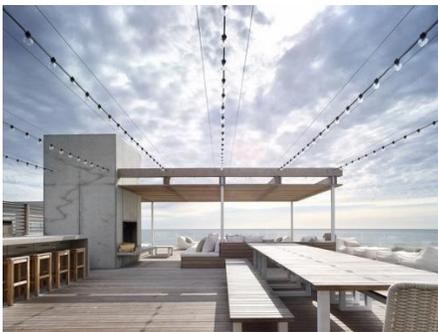


Figure 28 and 29; outdoor lighting (source: contemporist.com)

Lanterns: using lanterns as a light source is great because they are easy to move, they set the mood and come in a wide range of styles.



Figure 30; lanterns (source: contemporist.com)

Strip of hidden LED lights: placing LED strips along the base of stairs is a simple way to brighten up the outdoor space. It creates a super modern look and transforms the outdoor area into a place that can be enjoyed at all times.



Figure 31;hidden lighting(source:contemporist.com)

Uplighting: Make a statement in your backyard and garden by positioning lights under trees and plants as well as right up against a wall. It'll brighten the space while also making it look more dramatic and cozy.



Figure 32; Uplighting (source: contemporist.com)

Orbs & Spheres

Create an ethereal look by using spheres and orbs throughout your backyard, garden, or on your patio. You can hang them individually or cluster them in groups on the ground to set a mystical vibe and create a perfect little oasis.



Figure 33; orbs lighting (source: contemporist.com)

EXHIBITION AND DISPLAY

The main area dedicated to the exhibition is the waiting room that is proposed in the redesigning of the space. In order to incorporate Moroccan style and design in all its grandness the researcher suggests the use of fountains.

A fountain is a celebration. Thousands of years ago, the landscape feature was proof of a successful water delivery system. However recently in architecture, a fountain is considered a decorative feature, partly because it brings so much pleasure to a landscape. It sounds lovely and it is hypnotic to watch, as it catches sunlight and throws a fine, bright mist into the air.

These are some of the different types of fountain:

Wall fountains: typically requires less space. Whether freestanding or built in, a wall fountain can have a slim profile and can be designed to blend into the landscape if it is not the visual focal point

Trough fountain: these are fountains that draw their design inspiration from the barnyard, trough fountains are simple in style and shape making them a complement to almost any architectural style.

Floating fountain: a spray of water that emerges from a nozzle in the middle of a body water is sent skyward from a partially submerged floating fountain.

Courtyard fountains: freestanding fountains designed to make a visual statement, courtyard fountains are meant to be viewed from any angle. Generally symmetrical, they have multiple tiers and self-circulating pump system.

Waterfall fountains: a good choice for a rock garden or on a slope, waterfall fountains work with the force of gravity to move water from a higher to lower basins where it can be recirculated by a pump. Moroccan mosaic fountains are exquisite.



Figures 34, 35 and 36; Moroccan fountains (source: moorisharchitecture.com)

SUMMARY

This chapter looked at the summary of the researcher's findings from which the researcher gave various recommendations and proposed design ideas that could be used to create environmentally sustainable spaces at the study site while still incorporating aspects of Moroccan and zellige geometric patterns. The researcher concluded that by applying the recommended solutions, the site would be in line with durable global trends while keeping the Islamic geometric art spirit alive.

Suggestion for Further Study

Islamic Geometric patterns and Moroccan art and culture are very wide and associated with a rich history as a result of various cultural influences and transformations over the years. Zellige patterns are thus diverse and those covered in this research report are not exhaustive enough as there are many that are not used anymore and others that are designed and created by new generation craftsmen. Therefore, the researcher recommends further research to be done by interested individuals and groups concerning Islamic Geometry as a whole and the patterns associated with it.

Moroccan art is widely being used as inspiration for spaces but there are very scholarly information about the design.

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