



Cairo University

THE ROLE OF BIO-ENERGY IN THE DESIGN OF HEALING GARDENS TO HELP ADHD PATIENTS

By

Ruba Ahmed Gaber Ali

A Thesis Submitted to the
Faculty of Engineering at Cairo University
in Partial Fulfillment of the
Requirements for the Degree of
MASTER OF SCIENCE
In
ARCHITECTURAL ENGINEERING

FACULTY OF ENGINEERING, CAIRO UNIVERSITY
GIZA, EGYPT
2020

THE ROLE OF BIO-ENERGY IN THE DESIGN OF HEALING GARDENS TO HELP ADHD PATIENTS

By
Ruba Ahmed Gaber Ali

A Thesis Submitted to the
Faculty of Engineering at Cairo University
in Partial Fulfillment of the
Requirements for the Degree of
MASTER OF SCIENCE
In
ARCHITECTURAL ENGINEERING

Under the Supervision of

**Associate Prof. Dr. Ahmed Mostafa
AbdelGhaffar**
Professor of
Architecture Department
Faculty of Engineering, Cairo University

FACULTY OF ENGINEERING, CAIRO UNIVERSITY
GIZA, EGYPT
2020

THE ROLE OF BIO-ENERGY IN THE DESIGN OF HEALING GARDENS TO HELP ADHD PATIENTS.

By
Ruba Ahmed Gaber Ali

A Thesis Submitted to the
Faculty of Engineering at Cairo University
in Partial Fulfillment of the
Requirements for the Degree of
MASTER OF SCIENCE
In
ARCHITECTURAL ENGINEERING

Approved by the
Examining Committee

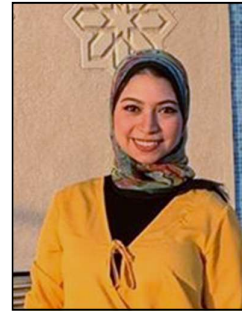
Ass. Prof. Dr. Ahmed Mostafa Abdelghaffar Thesis Main Advisor
Faculty of Engineering, Architecture department, Cairo university

Prof. Dr. Dalila Yahia El Kerdany Internal Examiner
Faculty of Engineering, Architecture department, Cairo university

Ass. Prof. Dr. Mohamed S. Al-Sawy External Examiner
Faculty of Engineering, Architecture department, MIU

FACULTY OF ENGINEERING, CAIRO UNIVERSITY
GIZA, EGYPT
2020

Engineer's Name: Ruba Ahmed Gaber Ali
Date of Birth: 15/10/1992
Nationality: Egyptian
E-mail: Roba093851@miuegypt.edu.eg
Phone: 01273330660
Address: 4,zamzam St., Monib, Giza
Registration Date: 1/10/2016
Awarding Date:/....../2020
Degree: Master of Science
Department: Architectural Engineering



Supervisors:

Ass. Prof. Dr. Ahmed Mostafa Abdelghaffar

Examiners:

Ass. Prof. Dr. Ahmed Mostafa Abdelghaffar-Thesis
Main Advisor
Prof. Dr. Dalila Yahia El Kerdany-Internal Examiner
Ass. Prof. Dr. Mohamed S. El-Sawy-External Examiner
Ass. prof. at Misr International University (MIU)

Title of Thesis:

The Role of Bio-Energy in the Design of Healing Gardens to help ADHD Patients.

Key Words:

ADHD; Bio-Energy; Healing gardens.

Summary:

After discussing many obstacles about ADHD. The research handled some natural treatments that can cope that, especially after the bad reviews about the stimulants

That's why the research handled some of the natural bio-energies as un-traditional healing ways of the old civilizations. Yet those bio-energies should be applied in a space. The research there handle the outdoor areas and gardens as there are many studies had been done. However, there was no any guidelines for the healing garden were dedicated for ADHD patients, that was our research aim to complete some of the missing points.

It is concluded some of the guidelines that can be effective for ADHD cases concerning four garden rooms which can be more appropriate. some of the recommended bio-energies features and exercises to be applied there. That are assumed to heal ADHD symptoms and decrease from their permanent hyperactive and in-attentive.

Disclaimer

I hereby declare that this thesis is my own original work and that no part of it has been submitted for a degree qualification at any other university or institute.

I further declare that I have appropriately acknowledged all sources used and have cited them in the references section.

Name: Ruba Ahmed Gaber Ali

Date: ../../2020

Signature:

Dedication

From the deepest place in my heart, I wish my grandmother was here to see what I had achieved because she would be so proud. Also, I would like to thank my mother for always believing in me as she is my first supporter ever.

All the love goes to my sisters Reem, Rawan and Ayten for pushing me forward always and helping me, facing journeys with lots of pain and long nights with me without thinking. I cannot forget my grandfather and father for holding my back and supporting me every single moment.

Finally, all my thanks would gather up for my whole family & my friends., and special thanks to those friends - Radwa Al.Maghraby , Ahmed Sadek, & Noha Shahren- who were always helping me to finish my thesis in a successful way.

Acknowledgments

First of all, it is the mercy of Allah that helped me to reach that step in my life and achieve my first goal.

I would like to thank my supervisor Dr. Ahmed Mostafa, Associate Professor of Architecture, Faculty of Engineering, Cairo University (FECU) for his valuable and precious supervision, guiding me and supporting my ideas.

I would like also to express my deep gratitude to Dr. Mohamed Samir El-Sawy, doctor of Architecture and consultant of bio-geometry science, Faculty of architecture engineering, Misr International University(MIU), for his continuous and permanent support and his valuable advices.

I am also grateful to the amazing Neurologist: Dr. Ehab Raga'y, Prof. in the national research center (NRC) for aiding me in that topic and helping me to meet some of his ADHD cases that helped me a lot in understanding there features and symptoms.

Thanks to all of my helpful doctors for giving me the compass on the right road to complete my thesis professionally.

Table of Contents

DISCLAIMER	I
DEDICATION	II
ACKNOWLEDGMENTS	III
TABLE OF CONTENTS.....	IV
LIST OF TABLES.....	IX
LIST OF FIGURES.....	X
ABBREVIATIONS.....	XIV
ABSTRACT	XV
CHAPTER 1	1
1.1. THESIS CHART	1
1.2. INTEREST OF THE RESEARCHER	2
1.3. INTRODUCTION.....	3
1.4. PROBLEM STATEMENT:	4
1.5. PROBLEM MANIFESTATION:.....	4
1.6. MAIN OBJECTIVE.....	6
1.6.1. Sub objectives:	6
1.7. HYPOTHESIS.....	7
1.8. METHODOLOGY.....	7
1.9. CONCLUSION.....	10
CHAPTER 2	11
2.1. WHAT IS ATTENTION DEFICIT HYPER ACTIVITY DISORDER?	12
2.2. CAUSES OF ADHD	13
2.2.1. Genes (biological influence)	13
2.2.2. Environmental factors:.....	14
2.2.3. Brain injuries.....	14
2.2.4. Food additives and sugar.....	14
2.2.5. Age.....	15
2.2.6. The gender	15
2.3. DIAGNOSING AND SYMPTOMS OF ADHD	15
2.3.1. Hyperactivity.....	15
2.3.2. Impulsivity	16
2.3.3. In-attention.....	16
2.4. SUB-TYPES OF ADHD	16
2.4.1. The predominantly hyperactivity-impulsivity.....	16
2.4.2. The predominantly inattentive	17
2.4.3. The combined type of ADHD	17
2.5. HOW CAN ADHD BE TREATED?	18

2.5.1.	Pharmacological treatment (Medical treatment):.....	18
2.5.1.1.	Stmulants	18
2.5.1.2.	Non-stimulants.....	18
2.5.1.3.	Antidepressants.....	18
2.5.2.	Psycho-social therapy	19
2.5.3.	Natural therapy.....	19
2.6.	ADHD`S STUDIES & REVIEWS.....	19
2.6.1.	Studies on gardens and green outdoor spaces	20
2.6.2.	Studies of Colors and its effect on ADHD patients	20
2.6.3.	Room arrangement`s and suitable furniture	21
2.6.4.	Effect of the animals on ADHD patients	23
2.6.5.	Activities as a therapy for ADHD.....	24
2.6.5.1.	Activities engaged with nature.....	24
2.6.5.2.	Mandala Art therapy	24
2.6.6.	Effect of light on ADHD.....	25
2.6.7.	Sound Sensitivity of ADHD	25
2.6.8.	Fragrances sensitivity towards ADHD.....	25
2.6.9.	Appropriate textures for ADHD	25
2.7.	CONCLUSION.....	26
CHAPTER 3		27
BIO-ENERGY IN OLD CIVILIZATIONS.....		27
3.1.	INTRODUCTION.....	28
3.2	OLD ANCIENT EGYPTIAN CIVILIZATION HEALING WAYS	29
3.2.1.	Using herbs as remedies and extracting oils.	30
3.2.2.	Reflexology and foot massage.	31
3.2.3.	The sand healing	32
3.2.4.	Healing by sound	32
3.2.5.	Bio-geometry in ancient Egyptian civilization	33
•	The harmonious quality of gold at the higher levels:	33
•	The harmonious quality for the ultraviolet energy at the higher levels:	33
•	The harmonious quality of the negative green energy,.....	33
3.2.5.1.	The nine pillars of design language.....	35
3.2.5.1.1.	<i>Earth energy Design</i>	35
3.2.5.1.2.	<i>Sky-linked design</i>	39
3.2.5.1.3.	<i>Qualitative harmonics</i>	39
3.2.5.1.4.	<i>Design principles</i>	39
3.2.5.1.5.	<i>Motion in Design</i>	40
3.2.5.1.6.	<i>Qualitative scaling system</i>	40
3.2.5.1.7.	<i>Archetypal design codes</i>	40
3.2.5.1.8.	<i>Material energy balancing</i>	40
3.2.5.1.9.	<i>Bio-signature</i>	41
3.2.6.	studies, experiments & Projects	41
3.2.6.1.	Hemberg Swiss project on mobile antenna	42
3.2.6.2.	Dr. Masaru Emoto and water crystals	42
3.2.6.3.	Classrooms designed by bio-geometry for ADHD.....	42
3.2.6.4.	Effect of shapes on human body	43
3.2.6.5.	Mandala as Art therapy for ADHD	44
3.3.	OLD INDIAN CIVILIZATION HEALING WAYS	45
3.3.1.	Ayurveda.....	45
3.3.2.	Yoga.....	46

3.3.2.1	Yoga space design	46
3.3.2.1.1	<i>The space and circulation</i>	47
3.3.2.1.2.	<i>Acoustics</i>	47
3.3.2.1.3.	<i>Ventilation and illumination</i>	47
3.3.2.1.4.	<i>Materials</i>	47
3.3.2.2.	Ritual House of Yoga / go C studio	47
3.3.2.3.	Studies &Experiments on Yoga	50
3.3.3.	The naturopathy	50
3.3.4.	Vastu Shastra	51
3.4.	OLD CHINESE CIVILIZATION HEALING WAYS	53
3.4.1.	Feng shui	53
3.4.1.1.	Terminology.....	54
3.4.1.2.	Schools of Feng shui	54
3.4.1.2.1.	<i>The tradition-classic school:</i>	54
3.4.1.2.2.	<i>Black sect tantric Buddhism school</i>	54
3.4.1.3.	The three main pillars of the Feng shui	56
3.4.1.3.1.	<i>The five elements</i>	56
3.4.1.3.2.	<i>The flow of Chi</i>	56
3.4.1.3.3.	<i>The Yin –Yang theory</i>	57
3.4.2.	Tai-chi	59
3.4.2.1.	Tai-chi philosophy	59
3.4.2.2.	Tai-chi studies	59
3.4.2.3.	Space for practicing tai-chi	59
3.5.	OLD JAPANESE CIVILIZATION HEALING WAYS	60
3.5.1.	Zen gardens	60
3.5.2.	Wabi-sabi approach in achieving Zen garden	61
3.5.3.	Symbolic meaning for the used materials.	61
3.5.3.1.	Rocks and stones.....	61
3.5.3.2.	Sand	61
3.5.3.3.	Water and waterfalls	62
3.5.3.4.	plants.....	62
3.5.3.5.	Bridge	62
3.5.4.	Japanese Meditations	64
3.5.4.1.	Mindfulness meditation studies for ADHD.....	64
3.5.4.2.	Spaces for practicing mindfulness meditation.....	65
3.6.	CONCLUSION	66
CHAPTER 4	67	
4.1.	WHAT IS HEALING GARDEN	68
4.1.1.	What is “Garden “	68
4.1.2.	Identification of “heal “	68
4.1.3.	The concept of gardens	69
4.1.3.1.	The garden as a Room.....	69
4.1.3.2.	The garden as a manifestation of life	69
4.1.3.3.	The garden as applied art	69
4.1.4.	Typology of gardens	70
4.1.5.	Healing gardens.....	70
4.2.	HISTORY OF HEALING GARDENS	72
4.2.1.	Health care facilitated gardens in Europe.....	72
4.2.1.1.	The Monasteries gardens in 12 th century.....	72
4.2.1.2.	The health care gardens in 14 th till 17 th century	73
4.2.1.3.	The Romantic period and it’s effect.....	73
4.2.1.4.	20 th century where the technology takes place.....	74

4.2.1.5.	Roger Ulrich became the transitional point.....	75
4.2.2.	Gardens in Islamic and Persian eras.....	75
4.3.	RESEARCHES, STUDIES & THEORIES OF HEALING GARDENS	77
4.3.1.	Researches and studies.....	77
4.3.2.	Theories.....	78
4.3.2.1.	Healing garden school:.....	78
4.4.	PRINCIPLES OF THE HEALING GARDEN	81
4.4.1.	Prevalence of green material – [Minimizing of hardscape]	82
4.4.2.	Universal design.....	85
4.4.2.1.	The different Feelings and relations.....	85
4.4.2.1.1.	<i>Social support</i>	85
4.4.2.1.2.	<i>Sense of control</i>	86
4.4.2.1.3.	<i>Physical movements and exercises</i>	88
4.4.2.1.4.	<i>Access to nature</i>	89
4.4.2.2.	Garden rooms.....	90
4.4.2.2.1.	<i>Serene</i>	91
4.4.2.2.2.	<i>The wild:</i>	92
4.4.2.2.3.	<i>The rich in species</i>	92
4.4.2.2.4.	<i>The space</i>	93
4.4.2.2.5.	<i>The common</i>	93
4.4.2.2.6.	<i>The pleasure garden</i>	94
4.4.2.2.7.	<i>Festive</i>	94
4.4.2.2.8.	<i>Culture and connection to the past</i>	94
4.4.2.2.9.	<i>Prospect</i>	95
4.4.2.2.10	<i>Refuge</i>	95
4.4.3.	Landmark features in the healing garden / symbolism	99
4.4.4.	Well defined parameters – Minimizing Ambiguity	99
4.4.5.	Minimizing Intrusion	100
4.4.6.	Surrounding and view:	101
4.4.7.	User group territories:	101
4.4.8.	Clear signs and navigations.....	101
4.5.	CONCLUSION.....	102
EVALUATION, ANALYSIS & RECOMMENDATION.....		103
CHAPTER 5		103
5.1.	INTRODUCTION.....	104
5.2.	THEORETICAL EVALUATION	105
5.2.1.	General topics analysis.....	105
5.2.2.	Detailed sub-titles	105
5.2.3.	Results.....	109
5.2.3.1.	Texture and materials.....	109
5.2.3.2.	Colors.....	109
5.2.3.3.	Different relations and feelings.....	109
5.2.3.4.	The garden rooms	109
5.2.3.5.	The lights	109
5.2.3.6.	Bio-geometry techniques	110
5.2.3.7.	Intrusion	109
5.2.3.8.	Ambiguity.....	109
5.2.3.9.	Chinese healing ways.....	111
5.2.3.10.	Human-Nature relation	111
5.2.3.11.	Scheduled programs and activities.....	111
5.2.3.12.	Variety of seating areas.....	112

5.2.3.13.	Avoid fragrances and sounds	112
5.2.3.14.	Furniture arrangement	112
5.2.4.	Discussion	113
5.2.4.1.	Serene garden room	113
5.2.4.2.	Refuge garden room.....	119
5.2.4.3.	The Festive garden room.....	122
5.2.4.4.	The common garden room	125
5.2.4.5.	Other garden rooms.....	129
5.2.4.6.	The Recommended garden rooms table.....	129
5.3.	APPLIED EXAMPLES	133
5.3.1.	Example 1	135
5.3.2.	Example 2	137
5.3.3.	Example 3	139
5.3.4.	Example 4	141
5.3.5.	Example 5	143
5.3.6.	Example 6	145
5.3.7.	Example 7	147
5.4.	CONCLUSION	149
5.5.	FURTHER RESEARCHES AND RECOMMENDATIONS	150
REFERENCES		152

List of Tables

Table 1.1 Thesis Chart	1
Table 2.1 ADHD chart.....	11
Table 3.1 Bio-energy chart	27
Table 4.1 Healing garden chart	67
Table 4.2 Universal design Chart	84
Table 4.3 Garden room and its effect on body, mind & spirit.....	97
Table 5.1 Evaluation chart	103
Table 5.2 Rating bio-energy of old civilizations	105
Table 5.3 Detailed table for the bio-energy	106
Table 5.4 Rating healing garden Fundamental principles.....	106
Table 5.5 Detailed table for healing garden principles	107
Table 5.6 Recommended plants and trees with cool colors for serene garden room....	114
Table 5.7 Examples for recommended and banned paved materials	116
Table 5.8 Examples for leafy & wide plants	120
Table 5.9 Examples of recommended green fences	123
Table 5.10 Examples of recommended ground covers.....	125
Table 5.11 Garden room sets.....	131

List of Figures

Fig1.1 Car accident of ADHD adult case in Dubai,2014.....	6
Fig 2.1 The difference between the normal and ADHD brains.....	13
Fig2.2 Dynamic seating chair ideas.....	22
Fig2.3 Swings and hammocks.....	22
Fig2.4Therapy balls in classrooms.....	22
Fig 2.5Therapy balls in classrooms.....	22
Fig 2.6 Round, informal arrangement in classroom of ADHD	23
Fig2.7 Canine for treatment.....	23
Fig2.8 Canine for treatment	23
Fig2.9 Equestrian activity as a therapy for ADHDs.....	24
Fig2.10 Mandala Art therapy.....	24
Fig2.11 Fluorescents lightening units.....	25
Fig3.1 Sanatorium of hathur temple.....	29
Fig3.2 Reflexology pathway	32
Fig 3.3 Color distribution in Radiesthesia	34
Fig 3.4 The negative energy emitted from shapes.....	34
Fig 3.5 Khufu pyramid slightly indented	34
Fig 3.6 Mandala pattern with a center point.....	34
Fig 3.7 Dome designs to neglect the harmful vertical negative green energy.....	34
Fig 3.8 The Hartman grid	35
Fig 3.9 The curry grid.....	35
Fig 3.10 The benker cubic grid.....	36
Fig 3.11 Al.Karnak temple meets Hartman and the global zones	37
Fig 3.12 Cancer in the tree.....	37
Fig 3.13 Sketch represents the negative effects of black streams.....	38
Fig 3.14 Dowsing pendulum.....	38
Fig 3.15 The Repetition principle	39
Fig 3.16 The Repetition principle.....	39
Fig 3.17 Interference in Luxor temple.....	39
Fig 3.18 3D form of bio geometry energy key.....	40
Fig 3.19 Utilization of the symbol outdoor.....	41

Fig 3.20 Bio-geometry signature.....	41
Fig 3.21 Utilization of the symbol indoor.....	41
Fig 3.22 Samples of the water crystal shapes in different cases.....	42
Fig 3.23 Lay out of the building and classes inside, taken for the experiment	43
Fig 3.24 Windows designed with BG patterns.....	43
Fig 3.25 Partition with certain angles.....	44
Fig 3.26 Asanas yoga (stretching muscles and joints).....	46
Fig 3.27 Ritual House of Yoga.....	47
Fig 3.28 Ritual House of Yoga plan.....	48
Fig 3.29 Waiting area with the light concrete wall.....	48
Fig 3.30 Waiting area in front of the lockers accessed to the main room.....	48
Fig 3.31 Colorful patterns cushions.....	49
Fig 3.32 Colorful patterns frame in lobby.....	49
Fig 3.33 Greens in the center.....	49
Fig 3.34 Outdoor yoga sessions.....	49
Fig 3.35 Outdoor yoga space.....	49
Fig 3.36 Outdoor yoga space.....	49
Fig 3.37 Concentric squares in Vastu mandala	51
Fig 3.38 The analogy of house according to human body in mandala	52
Fig 3.39 The Feng shui compass.....	54
Fig 3.40 sketch represents the Feng shui bagua in plot or garden or even in the room..	55
Fig 3.41 Sketch for the bagua filled the whole room.....	55
Fig 3.42 Sketch for the bedroom with missed gua.....	55
Fig 3.43 The overlapping plot and the house together.....	55
Fig 3.44 Feng shui five main elements.....	56
Fig 3.45 The balance of Yin-Yang theory.....	57
Fig 3.46 Tai-chi practice.....	59
Fig 3.47 Garden of Kenninij temple, Kyoto.....	60
Fig 3.48 Ryoan-ji, Kyoto stone.....	61
Fig 3.49 Daisen-in, Kyoto.....	62
Fig 3.50 pine tree.....	62
Fig 3.51 Bamboo tree.....	62
Fig 3.52 plum tree.....	62
Fig 3.53 stone bridge	63